MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU

A THESIS SUBMITTED TO

BABA FARID UNIVERSITY OF

HEALTH SCIENCES, FARIDKOT (PUNJAB)

IN THE PARTIAL FULFILLMENT

FOR THE AWARD OF DEGREE OF

DOCTOR OF MEDICINE

IN

PAEDIATRICS

MAY 2023

Submitted By

DR. NAVNEET KAUR

DEPARTMENT OF PAEDIATRICS
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA, PUNJAB

DECLARATION BY THE CANDIDATE

I hereby declare that the thesis entitled **"MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU"** submitted towards partial fulfillment of the requirements for the award of **MD** in **PAEDIATRICS** degree to BFUHS is a compilation of original work carried out by me under the supervision of **DR. PUNEET AULAKH POONI**, Professor & Head , Department of Paediatrics, **DR. SHRUTI KAKKAR,** Associate professor, Department of Paediatrics & **DR. VIKRAM NARANG**, Associate Professor, Department of Pathology. No part of this thesis has formed the basis for the award of any degree previously.

_____

DR. NAVNEET KAUR
Department of Paediatrics,
Dayanand Medical College & Hospital,
Ludhiana, Punjab

Date:

Place:

CERTIFICATE OF SUPERVISORS

This is to certify that the work incorporated in this thesis entitled "**MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU"** has been carried out by **DR. NAVNEET KAUR** under our direct supervision. The data incorporated in this thesis is original and genuine and has been carried out by the candidate herself.

Signature of Supervisor

Dr. Puneet Aulakh Pooni
Professor & Head
Department of Paediatrics
DMC&H, Ludhiana

Signature of Co-Supervisors

Dr. Shruti Kakkar
Associate Professor
Department of Paediatrics
DMC&H, Ludhiana

Dr. Vikram Narang
Associate Professor
Department of Pathology
DMC&H, Ludhiana

Date:

ENDORSEMENT BY THE HEAD OF THE INSTITUTE

This is to certify that the thesis entitled **"MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU"** is a bonafide research work done by of **DR. PUNEET AULAKH POONI**, Professor & Head, Department of Paediatrics, **DR. SHRUTI KAKKAR,** Associate professor, Department of Paediatrics & **DR. VIKRAM NARANG**, Associate Professor, Department of Pathology in this institution.

Principal

Dr. Sandeep Puri
Principal
DMC&H, Ludhiana

Date:

COPYRIGHT

Declaration by the Candidate

I hereby declare that the Baba Farid University of Health Sciences, Faridkot, shall have the rights to preserve & use this thesis in print or electronic format for academic/study purpose by the research scholar/students.

Signature

Dr Navneet Kaur
Department of Paediatrics,
Dayanand Medical College & Hospital,
Ludhiana, Punjab - 141001

Date:

© Baba Farid University of Health Sciences, Faridkot

Dedicated

to

My Family,

Friends

&

Teachers

ACKNOWLEDGEMENT

I am highly grateful to the God Almighty for granting me strength to persevere and complete my thesis. I would like to express my sincere gratitude to the following individuals who have made this thesis possible and provided me invaluable support and guidance throughout my journey.

First and foremost, I would like to extend my sincerest thanks to my thesis supervisor **Dr. Puneet A. Pooni**, Professor and Head, Department of Paediatrics, DMC&H, Ludhiana, **Dr. Shruti Kakkar**, Associate Professor, Department of Paediatrics and **Dr. Vikram Narang**, Associate Professor, Department of Pathology for their unwavering support, encouragement, and mentorship. Their guidance, expertise, and insights have been instrumental in shaping my research and have inspired me to strive for excellence.

I would also like to extend my gratitude to all my esteemed teachers **Dr. Deepak Bhat**, Professor, Department of Paediatrics, **Dr. JS Goraya**, Professor, Department of Paediatrics, **Dr. Kamaldeep Arora**, Professor, Department of Paediatrics, **Dr. GS Dhooria**, Professor, Department of Paediatrics, **Dr. Siddharth Bhargava**, Associate Professor, **Dr. Karambir S. Gill**, Assistant Professor, DMC&H, Ludhiana for their invaluable advice, constructive criticism, and support. Their contributions have been essential in the successful completion of this thesis.

I am grateful to my colleagues and friends **Dr. Harpreet Singh, Dr. Mitali, Dr. Amneet, Dr.Shubham, Dr. Rashmi** and **Dr.Himani** for their encouragement, and support throughout

my studies. I would also like to extend my thanks to all my seniors **Dr. Bhavna, Dr. Jasmine, Dr.Himanshu, Dr. Anupreet, Dr. Disha, Dr. Akshay, Dr. Vishal and Dr. Anshuman** and also all my juniors **Dr.Veronica, Dr. Mayank, Dr. Lovepreet, Dr. Kirti, Dr. Amandeep, Dr. Savi, Dr. Asmita, Dr. Mansi, Dr. Jasdeep, Dr. Gagan, Dr. Rajat, Dr. Ritvik, Dr. Himanshi, Dr. Arashdeep** and **Dr. Dharneet**. Their support has been a source of motivation for me and has helped me stay focused on my goals.

I would also like to acknowledge the support of my parents, **Mr. Kamaljit Singh** and **Mrs. Ranjna Devi**, who have always been my biggest supporters and encouraged me to pursue my dreams. I express my thanks to my lovely sibling **Dr. Ravinder Singh** for the support and for being the driving force behind my success. I truly appreciate my friends **Dr. Jaspal** and **Dr. Rajvinder** for their constant moral support.

I am also indebted to **Mrs. Namita** and **Mr. Jagjeet Singh** for taking out time at any time of the day. This would not have completed without them.

This thesis would not have been possible without the support of all these individuals. I am truly grateful to each and every one of them.

Thanks to all the patients who have been a part of this study and the whole DMC&H family who collaborated in producing this work and made this task possible.

Dr. Navneet Kaur

ABBREVATIONS

ADP	Adenosine Diphosphate
BIPAP	Bilevel Positive Airway Pressure
BP	Blood Pressure
CNS	Central Nervous System
CP	Central Pulses
CRT	Capillary Refill Time
DAMA	Discharge Against Medical Advice
DLC	Differential Leukocyte Count
EDTA	Ethylene diamine tetra-acetic Acid
FIO2	Fraction Of Inspired Oxygen
GCS	Glasgow Coma Scale
GIT	Gastrointestinal System
Hb	Hemoglobin
HFNC	High Flow Nasal Cannula
HR	Heart Rate
HU-EPO	Human Erythropoietin
ICU	Intensive Care Unit
IL-1	Interleukin 1
IL-6	Interleukin 6
ITP	Immune Thrombocytopenia
MPV	Mean Platelet Volume
PACO2	Partial Pressure Of Carbon Dioxide In Arterial Blood
PAF	Platelet Activating Factor
PALS	Paediatric Advanced Life Support
PAO2	Partial Pressure Of Oxygen In Arterial Blood
PCO2	Partial Pressure Of Pressure
PCR	Polymerase Chain Reaction
PCT	Plateletcrit
PDW	Platelet Distribution Width
PICU	Paediatric Intensive Care Unit
PLT	Platelet
PP	Peripheral Pulses

PRISM	Paediatric Risk Of Mortality
RDW	Red Cell Distribution Width
RR	Respiratory Rate
SARS-COV2	Severe Acute Respiratory Syndrome Coronavirus 2
SIRS	Systemic Inflammatory Response Syndrome
SLE	Systemic Lupus Erythematous
SPO2	Oxygen Saturation In Blood
TLC	Total Leukocyte Count
TNF A	Tumor Necrosis Factor A
TXA2	Thromboxane A2

ABSTRACT

Introduction: Mean platelet volume (MPV) is the measurement of the size of platelet. Subsequent values of MPV may be useful in predicting the outcome of critically ill children.

Aims & Objectives: To study the role of mean platelet volume as a prognostic marker in critically ill patients admitted to Paediatric ICU.

Material and methods: A prospective observational study was conducted in paediatric ICU over one year enrolling children 1 month to 18 years admitted with thrombocytopenia. Laboratory parameters were noted at admission, 72 hours and day 7 of admission and outcome in relation to morbidity and mortality was noted.

Results: There were total 498 admissions to PICU during the study period of 1 year (1 September 2021 to 31 August 2022) out of which 156 patients met inclusion criteria. The mean age was 93.11 months (S.D.59.87) or 7.8 Years. Male: Female ratio was 2.1:1. The mortality rate was 32.1% and mean duration of PICU stay was 7.33 days (S.D.8.09). Mortality was significantly related to age and gender but not to underlying etiology. Decreasing MPV/platelet count ratio over the period of time was found to be significantly associated with good outcome than MPV alone. Patients with low MPV (<6.5fl) had relatively poor outcome with significant p value. MPV alone is not important as prognostic parameter in predicting the outcome.

Conclusion: Platelet count and ratio of MPV/ Platelet count is a better predictor of mortality than MPV alone. Careful monitoring in form of various clinical and laboratory parameters including different platelet indices (MPV, PDW, PCT) is very helpful in early identification, prognostication, and prevention of complications in critically ill children.

Keywords: Thrombocytopenia, MPV, Platelet indices, Outcome prediction, PICU

TABLE OF CONTENTS

S. NO.	TOPIC	PAGES
I	INTRODUCTION	1-3
II	AIMS AND OBJECTIVES	4
III	REVIEW OF LITERATURE	5-13
IV	MATERIALS AND METHODS	14-22
V	OBSERVATIONS AND RESULTS	23-79
VI	DISCUSSION	80-105
VII	SUMMARY AND CONCLUSIONS	106-109
VIII	BIBLIOGRAPHY	110-116
	APPENDICES – I - PROFORMA - MASTER CHART	
	APPENDICES – II - APPROVAL LETTER OF THESIS PLAN - THESIS PLAN	

LIST OF TABLES

Table No.	Title	Page No.
1.	Age wise distribution of patients	24
2.	Gender distribution of patients	25
3.	Primary system involved	26
4.	PRISM Score at admission	27
5.	Hemoglobin	28
6.	Platelet count	29
7.	Platelet count difference	30
8.	MPV	31
9.	Difference in MPV	32
10.	MPV / Platelet count ratio	33
11.	Ventilation requirement	34
12.	Inotrope requirement	35
13.	Final outcome	36
14.	Duration of stay	37
15.	Effect of age on outcome	38
16.	Effect of mean age on outcome	39
17.	Effect of gender on outcome	40
18.	Effect of primary system involved and outcome	43

19.	PRISM score and outcome	45
20.	Hemoglobin and outcome	46
21.	Platelet count and outcome	47
22.	Platelet count difference and outcome	48
23.	Platelet count subgroup and outcome	49
24.	MPV and outcome	50
25.	Difference in MPV and outcome	51
26.	MPV / Platelet count ratio and outcome	52
27.	Difference in MPV / Platelet count ratio and outcome	53
28.	MPV sub group and outcome	54
29.	MPV sub group on day 1, 3, 7 and outcome	56
30.	Relation of Platelet and PRISM	58
31.	Relation of Difference in Platelets count and PRISM	60
32.	Relation of PRISM and platelet count subgroup	63
33.	Relation of MPV and PRISM	65
34.	Relation of difference in MPV and PRISM	66
35.	Relation of MPV/ Platelet count ratio and PRISM	67
36.	Relation of Hb and RDW in dengue patients	68
37.	Relation of Platelet count in dengue patients	70
38.	Relation of Platelet count subgroup and Dengue patients	71
39.	Relation of MPV in dengue patients	72

40.	Relation of MPV / Platelet count ratio in dengue patients	73
41.	Ventilation requirement and outcome	74
42.	Relation of MPV and need for ventilation	75
43.	Inotrope requirement and outcome	76
44.	Relation of MPV and need for inotropes	77
45.	Duration of stay and outcome	78
46.	Relation of MPV and duration of stay	79

LIST OF FIGURES

Fig. No.	Title	Page No.
1.	Selection of study group.	23
2.	Age wise distribution of patients	24
3.	Gender distribution of patients	25
4.	Primary system involved	26
5.	PRISM II at admission	27
6.	Hemoglobin	28
7.	Platelet count	29
8.	Platelet count difference	30
9.	MPV	31
10.	Difference in MPV	32
11.	MPV / Platelet count ratio	33
12.	Ventilation Requirement	34
13.	Inotrope requirement	35
14.	Final outcome	36
15.	Duration of stay	37
16.	Effect of age on outcome`	39
17.	Effect of gender on outcome	41
18.	Effect of primary system involved and outcome	44
19.	PRISM score and outcome	45
20.	Hemoglobin and outcome	46
21.	Platelet count and outcome	47
22.	Platelet count difference and outcome	48
23.	Platelet count subgroup and outcome	49
24.	MPV and outcome	50
25.	Difference in MPV and outcome	51
26.	MPV / Platelet count ratio and outcome	52
27.	Difference in MPV / Platelet count ratio and outcome	53
28.	MPV sub group and outcome	54
29.	MPV sub group on day 1, 3, 7 and outcome	57
30.	Relation of Platelet and PRISM	59
31.	Relation of Difference in Platelets and PRISM	61
32.	Relation of PRISM and platelet count subgroup	64
33.	Relation of MPV and PRISM	65
34.	Relation of difference in MPV and PRISM	66

35.	Relation of MPV/ Platelet count ratio and PRISM	67
36.	Relation of Hb in dengue patients	69
37.	Relation Of RDW In Dengue Patients	69
38.	Relation of Platelet count in dengue patients	70
39.	Relation of Platelet count subgroup and Dengue patients	71
40.	Relation of MPV in dengue patients	72
41.	Relation of MPV / Platelet count ratio in dengue patients	73
42.	Ventilation requirement and outcome	74
43.	Relation of MPV and need for ventilation	75
44.	Inotrope requirement and outcome	76
45.	Relation of MPV and need for inotropes	77
46.	Duration of stay and outcome	78
47.	Relation of MPV and duration of stay	79

LIST OF PICTURES

Table No.	Title	Page No.
1.	Platelets with increased MPV (>15fl) are usually younger and have high reactivity	5
2.	Airway identification	15
3.	Respiratory rates (breaths/ minute) at different ages	16
4.	Various lung sounds and their interpretation	17
5.	Heart Rate (beats/minute) at different ages	18
6.	Hypotension cut off according to age	19
7.	Glasgow coma score	20
8.	Normal range of different hematological parameters	21
9.	Comparison of study table in different studies	86-89

INTRODUCTION

Platelets are the main components of the blood which are the smallest but the most reactive component. Platelets play a major role in various physiological and pathological process of the body like coagulation, thrombosis, inflammation and maintaining vascular endothelial integrity [1]. Under normal hemostasis and physiological conditions, platelet count, morphology and functions are maintained in an equilibrium by regeneration and elimination but in certain pathophysiological conditions, there occurs imbalance between platelet regeneration and elimination that results in a change in platelet indices. In critically ill patients, thrombocytopenia can result from hemodilution, increased platelet consumption, increased platelet destruction and sequestration. Decrease in platelet count is an independent risk factor for mortality in ICU patients .The increased platelet destruction can lead to increase production and release of larger and younger platelets into the peripheral blood film. Later, there may be septicemia induced bone marrow suppression [2].

During inflammatory process, the response of bone marrow cells activity can be reflected by increase in platelet counts in response to acute phase reaction [3]. This is due to the activation of various factors like PAF, TXA2, ADP and inflammatory cytokines like IL-1, IL-6, TNF -α which stimulates the precursor cells of platetets [4]. IL-6 leads to increased TpO generation in liver and also has direct effect through IL-6R receptor present on the membrane of megakaryocyte [5]. During inflammation, platelet –leukocyte aggregates are formed which occurs due to the adhesion proteins present on the cell surface of activated platelets [6].The average size of the platelets is larger when they are being produced at a higher rates.

Various platelet indices can be easily measured by automatic counter devices. However, there are very few studies regarding role of different platelet markers as an indicator of acute phase response for assessment of different disease activity and response to treatment [3].Various platelet indices that are being measured are MPV(Mean

platelet voume),Plateletcrit (PCT) ,Platelet distribution width (PDW) . These indices have been demonstrated to be of significance in severity assessment and monitoring illness through different studies done in both adult and paediatric population. Thus, effective utilization of these platelet Indices can provide valuable insights into patient management, without the additional burden of cost and time on the lab.

MPV is the measure of platelet volume. There are different analysers and different methods used to measure MPV .The three methods to measure MPV are – The electrical impedance method, the optical method and the optical fluorescence method [7]. There are various preanalytical factors that influence the MPV. These factors include type of anticoagulant used, storage time of blood sample, method of measurement and temperature of sample storage [8].

The underlying inflammatory processes in sepsis patient can lead to excessive secretion of mediators and hence more platelet activity which leads to increased platelet volume and size, thus MPV is suggested as the marker of platelet function and activation [9]. In various studies there has been an association between increased MPV with mortality in septic shock patients [10].In critically ill patients, it was noted that increase in MPV during first 72 hours of hospital admission is associated with poor prognosis [11]

Therefore, MPV can help in risk stratification of critically ill children. The nature of MPV as an inflammatory marker has been noted in various studies and there has been a correlation between higher MPV and active inflammatory disease.

In tropical country like India, infectious diseases like dengue are very common. There is a direct impact of platelet count and platelet function on the severity of the disease and hence platelet indices can be used as a prognostic marker in dengue patients. Since there is paucity of literature regarding platelet parameters in dengue patients and automation in hematology has facilitated the pathologists to measure the functions of newer parameters, so there is a need to study the platelet indices and the poor outcomes related to these indices. Moreover, it was noted that MPV can be a surrogate marker of

bleeding in thrombocytopenia patients hence there is need for the study regarding the association of MPV and severity of dengue patients [12, 13]. Various studies done in india in dengue patients with thrombocytopenia has revealed that there were minor variations in platelet indices like MPV, PDW and PCT. It was noted that dengue patients has low MPV and low platelet count as compared to other patients [12].

Since MPV is a cost effective, simple and easily available marker and can be easily used as a prognostic marker in critically ill patients and can help in risk stratification, therefore this study was prospectively conducted to study the role of MPV as prognostic marker in critically ill children admitted in Paediatrics ICU.

AIMS & OBJECTIVES

- To study the role of mean platelet volume as a prognostic marker in critically ill patients admitted to PICU of Dayanand Medical College and Hospital, Ludhiana.

REVIEW OF LITERATURE

Platelets are formed during thrombocytopoiesis, they are non-nucleated. Thrombopoietin plays a major role in proliferation and differentiation of megakaryocytes and platelet formation. When platelets are activated, they form cytoplasmic processes like pseudopodia, called proplatelets. Mature proplatelets are released to the bone marrow. The platelets are involved in an inflammatory response and is associated with release of cytokines and various chemokines. These factors attract leukocytes and help in adhesion to endothelium at the site of injury. During this process, platelets may interact with leukocytes forming platelet-leukocyte aggregates.

Mean platelet volume is the measure of platelet size that predicts the platelet function and activity. Normally, the percentage of large platelets is 0.2-5.0% of whole platelet population. Platelets with MPV >15 fl are considered large platelets whereas platelets with MPV >20fl are considered giant platelets. Physiologically MPV is inversely related to platelet count which is associated with hemostasis and preservation of constant platelet mass. Platelets with increased MPV (>15fl) are usually younger and have high reactivity [9].

Picture 1: Conditions associated with change in MPV

Conditions associated with decreased MPV	Conditions associated with increased MPV
• Hypersplenism • Cytotoxic chemotherapy • Iron deficiency anemia • Aplastic anemia • Acquired immunodeficiency syndrome • Crohn's disease • Ulcerative colitis	• Immune thrombocytopenia • Myeloproliferative disorders • Post splenectomy • Diabetes mellitus • Thrombocytopenia secondary to sepsis • Myocardial infarction • Respiratory diseases

Differences in platelet size have been observed in respiratory diseases, associated with inflammatory condition. In active tuberculosis, cellular body immunity is stimulated. Bacillus-activated macrophages and lymphocytes produce such cytokines as IL-6 or TNF-α, which affect maturation of megakaryocytes and platelet release. Therefore, reactive thrombocytosis is observed in tuberculosis, in which increased platelet count and size are associated with inflammation intensity. Contrary to the stable form, during disease exacerbation, the MPV is significantly reduced. The decrease in MPV can be related to the formation of microthrombi in tuberculous cavities, which are to inhibit the disease spread and are considered a defense reaction. It has been suggested that MPV can be a negative marker of the acute phase of inflammation, and a decrease in MPV can be caused by increased platelet count and their accelerated wear.

In various studies, it is found that there is a significant increase in MPV in patients with chronic renal failure treated with recombinant human erythropoietin. The authors suggest that HuEPO stimulation causes a release of young thrombocytes that are larger and undergo activation and aggregation more easily, leading to higher risk of blood clot formation[9]. The researchers excluded the effect of dialysis and aspirin administration on MPV, and even the increase in MPV was not EPO dose-dependent.

Many studies showed MPV to be a reliable marker of the crohn's disease activity, but its sensitivity is too low to differentiate moderate from severe form of the disease. On the other hand, the increased activity of ulcerative colitis is associated with MPV decrease [9].

The diagnostic usefulness of MPV was also assessed in the course of juvenile systemic lupus erythematous (SLE). Study results showed higher MPC levels in paediatrics patients as compared to the control. The studies showed higher MPV levels in children with SLE, although contrary to other researchers, they reported a significant correlation between MPV and SLE advancements and even suggested possible application of MPV as an

additional marker, apart from ds-DNA and C3.Contrary to the results obtained in the group of children with juvenile SLE, adult patients with active disease had a statistically significant decrease in MPV values as compared to inactive SLE. Researchers suggest that this is due to the consumption of large active blood platelets during inflammation, although they also indicate that this is only a theory to be further confirmed by clinical research [9].

It is seen that large thrombocytes show greater amount of cell granules, have higher expression of adhesion molecules, and have faster activation, which results in platelet hyperactivity and thus increased risk of clot formation. An increased MPV is suggestive of increased platelet activity and increased secretion of mediators [16]. Increased MPV is suggestive of large platelet size which contains more granules and prothombotic material. In inflammatory conditions there is overconsumption of platelets which leads to increased production of new platelets, which are larger in size. These young platelets are functionally, metabolically and enzymatically more active. These young platelets contains larger amount of thromboxane A2 and have increased expression of procoagulant surface proteins which leads to increased prothrombotic states [17].

In various studies there has been a strong correlation between high MPV and active inflammatory disease which suggests nature of MPV as an inflammatory marker and reflects both prothrombotic and proinflammatory nature of MPV. There has been correlation between increased procalcitonin levels and MPV elevation in critically ill children which indicates that an elevated MPV value in paediatric ICU can be a marker of early sepsis. On the other hand, platelet count trend shows.

No significant difference between patients with high MPV and with normal MPV, this suggests that MPV behaves independently from platelet count in critically ill children [18]. There is thrombocytopenia in patients with sepsis during first 4 days of hospital admission, with an inverse relationship between MPV and platelet count [1, 19, 20].

Patients with septicaemia have thrombocytopenia. Nelson and Kehl in their study have reported that in patients with thrombocytopenia due to platelet loss or consumption, have increased MPV. Giles also found that patients with infection an increased MPV. However, he did not differentiate between localised infection and septicaemia. The MPV in patients with localised infection was normal, but about half of the patients with septicaemia had increased MPV, but this was not associated with thrombocytopenia. In these patients with inadequate treatment, there was further increase in MPV and normalisation was seen with adequate treatment. Thus an increased MPV in a patient with bacterial infection could suggest the possibility that the infection has become invasive-that is, that septicaemia has occurred and it also tells about the efficacy of the treatment. Young platelets recently released from the bone marrow are thought to be larger in size, which become smaller in size. However, in various studies it was postulated that platelet size is not related to age, but to the ploidy class of the megakaryocyte which produces the platelets. In cases with enhanced thrombocytopoiesis, increased megakaryocyte ploidy is seen. Therefore, it is possible that the rise in MPV in septicaemia is caused by an increased production of larger and/or younger platelets as a reaction to septicaemia-related platelet destruction [21]. The raised MPV in patients with normal platelet counts should then reflect a compensated thrombocytolytic state. Increased levels of B-thromboglobulin have been found in patients with acute bacterial infection, indicating in vivo activation and release of platelets. Therefore it was postulated that the cause for the direct MPV increase in septicaemia can be due to in vivo activation and release, presuming that activated and released platelets, which are less dense, are larger also. The finding in light microscopy of large degranulated platelets in patients with septicaemia and increased MPV could well fit in in this hypothesis [22, 23].

In a study it was suggested that initial MPV values may not be useful as a prognostic marker of mortality, but subsequent values may be useful in

predicting mortality.In previously published study it was noted that neonates with late onset sepsis have increased PDW and MPV. It was noted that in the first 72 h, the MPV value decreased, followed by an increase up to day 7. The MPV value in non-survivors only showed a minimal decrease then increase over 7 days in patients with age group of 28 days to 3 years [24].

Though not all patients with severe thrombocytopenia develop a bleeding tendency but patients with severe thrombocytopenia may develop haemorrhagic diathesis. Therefore in a particular patient, platelet number alone may be an insufficient predictor of bleeding tendency. It was suggested that platelet size also affects the haemostatic potential of the patients because the function of platelets depends on their size under normal conditions. In a study, it was suggested that in thrombocytopenia states, platelet size as well as number must be considered when predicting haemostatic potential. In this study, it was clearly indicated that in severe thrombocytopenia mean platelet volume is the most important variable that differentiates between those patients with and those without haemorrhagic diathesis. It was observed that large platelets are haemostatically superior to small platelets. Many studies have suggested that large platelets are metabolically and functionally more active than small platelets. Large platelets contain more glycogen, adenine nucleotides, orthophosphate, reduced glutathione, NADH, and NADPH, and show greater rate of protein, carbohydrate and lipid metabolism and contained more platelet factor III activity. There is better aggregation efficacy of large platelets. Large platelets also showed greater adhesiveness to glass beads and collagen [25].

Many studies have suggested inflammatory role of platelets in viral infections. Their role is most pronounced in the acute phase of infection and their functions are assessed by platelet indices. The number of platelets and their percentage in whole blood is indicated by PCT, while their morphology is indicated by MPV and PDW. In a study with SARS-

CoV-2 positive children, Lower PCT values were noted in children with SARS-CoV-2 infection compared to other respiratory infections, but these differences were not statistically significant. MPV indicates the average size of an individual platelet and it can also be used as an inflammatory marker because platelets are reactively enlarged as part of an inflammatory response, especially in children. According to this research, children with SARS-CoV-2 infection had statistically higher platelets compared to children with other respiratory infections, which may indicate a strong activation of platelets caused by proinflammatory cytokines [26].

Ozenen et al stated that MPV was not a significant marker for distinguishing SARS-CoV-2 positive children from PCR negative controls. It was postulated that the difference was due to the fact that children with SARS-CoV-2 infection were examined in the aforementioned study regardless of the underlying condition, while in this study, underlying condition was an exclusion criterion. In another study conducted by Yoldas et al., it has been noted that SARS-CoV-2 positive children had significantly higher MPV values due to the inflammation. Therefore, it was suggested that MPV value can be used as a diagnostic indicator for SARS-CoV-2 positive children. Therefore, Platelet indices have significant role for clinical utility in children with COVID-19.Diagnostic properties of MPV could help paediatricsians in preliminary diagnosis and triage of patients prior to their admission to the hospital [26].

Dinc et al. showed the diagnostic value of MPV in determining the diagnosis of acute appendicitis in adults. Hagi et al. concluded that MPV and RDW indexes have significant role in the diagnosis of acute and perforated appendicitis, especially in adults. They also emphasized that MPV is more valid in screening acute appendicitis, compared to the RDW. In another study, no significant association was found between MPV and paediatric appendicitis, which is in agreement with the results obtained by Benito et al. who also stated no significant association between MPV and appendicitis in children. Uyanik et al. confirm that MPV in children with

acute appendicitis has no diagnostic value. However, Oktay et al. found that low MPV showed importance for the diagnosis of acute appendicitis. Bilici et al. also reported a significant reduction in MPV in the group of children with acute appendicitis in comparison with patients with appendicitis [27].

In recent studies it has been noted that increased platelet volume acts as an independent risk factor in coronary artery diseases and cerebrovascular diseases [28, 29, 30]. Slavka et al. reported subjects with higher MPV (>11.01 fL) value had 1.5 times higher vascular mortality risk. In the same study, it has been noted a significant positive relationship between high MPV and the risk of ischemic heart disease [31]. The increase in the mean platelet volume is considered to be a good indicator of higher thrombocyte activity.

In recent studies, alterations in MPV values have been noted in some inflammatory disease. In recent studies, MPV was tested as a simple inflammatory marker, MPV was reported to have been affected by inflammation, and that it increases significantly in various inflammatory processes like myocardial infarction, sepsis, cerebrovascular diseases, respiratory distress syndrome and chronic pulmonary diseases [32, 33, 34, 35]. Kisacik et al. found that there was low platelet volume in active ankylosing spondylitis and rheumatoid arthritis, and that MPV levels increased and normalized with treatment [36, 37]. In the literature, MPV has been reported to decrease in some inflammatory bowel diseases such as ulcerative colitis, especially in the active period, and that it could be used for determination of the disease activity [29, 37, 38, 39]. Danese et al. postulated that there is low MPV in inflammatory bowel diseases which could be due to the consumption and sequestration of large active platelets in the vascular segments of the inflamed bowel [40].

In paediatrics ICU patients, it is seen that high MPV is related to increased Procalcitonin levels which suggests that MPV can be a marker of sepsis but it has no significant relation with platelet count .This explains the

different pathophysiology of sepsis in paediatrics and adult patients.In paediatrics patients platelet responds to sepsis through increase in size rather than a significant change in platelet count [17, 41]. It is seen that high MPV in initial 72 hours of hospital stay is seen in non-survivors than in survivors [42, 43]. Moreover, the change in MPV after 72 hours is suggestive of an independent risk factor of mortality. Various studies show the relationship between platelet indices and mortality and disease severity of the patient [44, 45]. It is seen that patients with low platelet count with high MPV and Platelet distribution width had higher mortality rates than those with normal platelet indices. Therefore, platelet indices can be prognostic marker in critically ill patients [16, 17, 46].

It is seen that there has been a relation between increased mortality and gradual increase in MPV after few days of hospital admission. Increasing MPV values is seen in non survivors than in survivors [47, 48].

MPV has been an important marker in predicting mortality in patients with community acquired pneumonia and patients of myocardial infarction [17, 41]. It is seen that single initial value of MPV may not be a useful prognostic marker of mortality in critically ill patients but repeated MPV values may be useful in predicting the mortality in critically ill patients [47, 48].

Zainab Mohammedi Golwala et al. In their study, it was noted that there was no significant difference in MPV value among survivor and non-survivor group, however the ratio of MPV and platelet count has proved to be significant. It was seen that there is a significant increase in the ratio in non-survivor. This may be due to increased platelet production and release of immature platelets in the peripheral blood due to increased inflammatory markers in sick patients. Therefore, MPV alone may not be the significant prognostic marker to analyse the outcome but MPV along with other platelet indices can prove to be a better prognostic marker [2].

In the study done by Kritika Sharma et al. in 2013 on dengue patients, total 200 cases were enrolled. In this study, no significant difference was noted in values of MPV and the disease severity and treatment outcome

and thus excluded the role of MPV in dengue patients [12]. Similar study done by Shradha khatri et al. in 2018 concluded that there was no significant variations in platelet indices in dengue patients [13].

Seung Jun Choi et al. In their study regarding role of platelet indices as predictive marker in outcome of paediatrics septic shock patient, it was noted that platelet count was three times higher in survivors. The difference of platelet count between survivor and non survivors was significant. In this study, mean MPV was higher in non survivors but the difference between survivors and non survivors was not significant [10]. In this study it was concluded that platelet count has proved to be better predictor of mortality in paediatrics patients with septic shock but in contrast, MPV and PDW were not significant predictors of mortality in these patients.

Since there is paucity of literature to establish the role of MPV in determining the outcome of critically ill patients in Paediatrics ICU, Hence we endeavoured to conduct a study on MPV in paediatrics population.This study was conducted prospectively in paediatrics patients admitted to Paediatrics ICU over a period of one year.

MATERIAL AND METHOD

Source of data

A prospective observational study was conducted in the 10- bedded level III Paediatrics intensive care unit of tertiary care hospital, Dayanand Medical College and Hospital, Ludhiana. All children in the age group of 1 month to 18 years of age admitted in paediatrics ICU with thrombocytopenia were included.

Method of collection of data

It was an observational study conducted over a period of one year from 1 September 2021 to 31 August 2022. This study was approved by the institutional Ethics Committee.

Inclusion criteria

Children from 1 month to 18 years of age admitted in Paediatrics ICU with thrombocytopenia (Platelet Count < 1, 50,000) at time of admission were included in the study.

Exclusion criteria

1. Children with underlying malignancies.
2. Known case of ITP, Aplastic Anemia and other hematological disorders.
3. Patients who expired within 24 hours of admission.

All patients with thrombocytopenia at time of admission were evaluated. Basic laboratory test like Complete blood count, Blood glucose, renal and liver function tests, arterial blood gas along with C- reactive proteins were done .Other investigations like blood culture, urine culture, Broncho-alveolar lavage culture, coagulation profile were sent in required cases. Prognostic score (PRISM) was calculated for all the patients included in the study .The primary outcome was mortality, recorded as discharged/ shifted or died.

The following data was compliled as shown in proforma.

- Demographic details
- Vital signs
- Examination findings
- Anthropometric indices
- Primary diagnosis made by clinicians
- Need for oxygen
- Need for ventilator
- Inotropes requirement
- Laboratory investigations
- Outcome –Discharged/ Shifted ,Death or DAMA (Discharged against medical advice)

- **ANALYTICAL FRAMEWORK :**

A.Method of collection of data [14]: At time of admission, demographic data along with diagnosis and vital signs were recorded.

Assessment of clinical status was done in all cases and recorded as per PALS guidelines as below

a. AIRWAY:

Picture 2: Airway identification [14]

Airway identification	Features
Stable	Clear, No obstruction to flow of air, no noisy breathing
Maintainable/Unstable	May require positioning and /or suctioning of secretions
Non Maintainable/Obstructed	Require advanced airway adjuncts

b. BREATHING:

1. Respiratory rate:

Picture 3: Respiratory rates (breaths/ minute) at different ages [14]

Age	Breath per minute
Infant (<1 year)	30-53
Toddler (1-3 years)	22-37
Pre-schooler (4-5 years)	20-28
School Age(6-12years)	18-25
Adolescent (13-18 year)	12-20

-Tachypnea: It is defined as respiratory rate more than normal for age.

-Bradypnea: Breathing rate <10 per minute at any age is considered abnormal.

-Apnea: Cessation of breath for 20 seconds or longer or earlier if associated with cyanosis, bradycardia, pallor and / or hypotonia.

2. Work of breathing:

When tachypnea alone fails to meet the oxygen demands of the body, accessory muscles of respiration work hard to increase the airflow to the lungs.

Accessory muscles like alae nasi, suprasternal, suprasternal, supraclavicular, intercostal, subcostal muscles were assessed that manifested as: nasal flaring, subcostal and intercostal retractions, head bobbing.

3. Auscultation:

Lung Sounds were assessed to get information regarding the air entry into the lungs.

Picture 4: Various lung sounds and their interpretation [14]

Sounds	Interpretation
Stridor	Upper airway obstruction
Wheeze	Lower airway obstruction
Expiratory grunting	Alveolar atelectasis
Inspiratory crackles	Fluid / Mucus/blood in the lungs
Unilateral absent breath	Pleural Fluid , consolidation or pneumothorax

4. Oxygen Saturation:

-It is the percentage of the child's hemoglobin that is saturated with oxygen (SpO2).

-Normal SpO2 is 94 % or more in room air.

C. CIRCULATION:

1. Rate and Rhythm:

Picture 5: Heart Rate (beats/minute) at different ages [14]

Age	AWAKE HR	SLEEPING HR
Neonate	100-205	90-160
Infant (<1 year)	100-180	90-160
Toddler (1-3 years)	98-140	80-120
Pre-schooler (4-5 years)	80-120	65-100
School Age(6-12years)	75-118	58-90
Adolescent (13-18 year)	60-100	50-90

2. Central and peripheral pulses:

Central pulses were palpated in neck (carotids), brachial or femoral arteries.

Peripheral pulses evaluated were radial, dorsalis pedis or posterior tibial arteries.

3. Capillary refill time (CRT/CFT):

CFT was evaluated by applying pressure over the nail bed or skin and blanching the underlying capillary circulation .Normally, the CFT is 2-3 seconds. Prolonged CFT is suggestive of insufficient circulation and brisk CFT (< 2 sec) is suggestive of septic shock due to underlying vasodilation.

4. Blood Pressure:

Appropriate size cuffs covering at least half the arm length between acromion and olecranon process ensuring that cuff wraps around 70- 80 % of mid- arm circumference were used .

Picture 6: Hypotension cut off according to age[14]

Age	Formula
Term Neonate (28 days)	<60mmHg
Upto 1 year	<70mmHg
1-10 years	70+ Age (years) x 2
10 years	<90

d. DISABILITY:

The neurological parameter was assessed by Glasgow coma scale (GCS).

Components of GCS score:

-Eye response: Range 1-4

-Verbal Response: Range 1-5

-Motor Response: Range 1-6

Picture 7: Glasgow coma score [15]

Modified Glasgow Coma Scale			
Eye Opening	**Score**	**Child**	**Infant**
	4	Spontaneous	Spontaneous
	3	To Sound	To Sound
	2	To Pain	To Pain
	1	None	None
Verbal	5	Oriented	Coos/ Babbles
	4	Confused	Irritable cry
	3	Inappropriate words	Cries to Pain
	2	Incomprehensive sounds	Moans to pain
	1	None	None
Motor	6	Obeys commands	Spontaneous
	5	Localises pain	Withdraws to touch
	4	Withdraws to pain	Withdraws to pain
	3	Decorticate flexion	Decorticate flexion
	2	Decerebrate extension	Decerebrate extension
	1	None	None

- Blood sample from the patients enrolled in the study was used to get data regarding the complete blood count, renal and liver functions .Laboratory tests to get sepsis screen like c-reactive proteins, blood, urine culture were also done in some patients.
- For every patient admitted to PICU, 3ml EDTA sample was taken and processed in Beckman DX900 and hematological parameters were recorded in details. These included Hemoglobin (Hb),Total Leukocyte count (TLC), Differential leukocyte count (Neutrophil, Lymphocyte, Eosinophil, Monocyte, Basophil), Platelet count, Mean platelet volume (MPV)
- All the patients with thrombocytopenia included in our study were selected. In these patients, Peripheral blood smear was re-examined to look for causes of pseudo thrombocytopenia .Once thrombocytopenia is confirmed, mean platelet volume was analysed.

Picture 8: Normal range of different hematological parameters:

Hemoglobin (Hb)	12-17 (gm/dl)
T.L.C	4.0-10.0 (10^3/microL)
Neutrophils	40.0 – 80.0 (%)
Lymphocyte	20.0 – 40.0 (%)
Monocyte	2.0 – 10.0 (%)
Eosinophil	1.0 – 6.0 (%)
Basophil	0.0 – 1.0 (%)
Platelet count	150.0 – 450. 0 (10^9/L)
MPV	6.5 – 11.6 fl

- Paediatrics risk of Mortality (PRISM) score was also calculated for all the patients. The score was calculated in all the patients at time of admission. This score includes 14 variables like GCS, pupillary reactions, systolic blood pressure ,diastolic blood pressure, heart rate, respiratory rates, PaCO2, paO2/FiO2, Coagulation profile, Glucose, Potassium ,Total bilirubin, calcium and bicarbonate.

  Statistical Analysis:

  Data were described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data were normally distributed, a Kolmogorov-Smirnov test was used. Comparison of quantitative variables between the study groups was done using Mann Whitney *U* test non-parametric data. For comparing categorical data, Chi square ($\chi 2$) test was performed and fisher exact test was used when the expected frequency is less than 5. A probability value (*p* value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows. The patient outcome was correlated after exclusion of the patients who went DAMA because primary cause for discontinuation of treatment in these patients was financial constraints.

OBSERVATIONS & RESULTS

A prospective observational study was conducted over a period of 1 year in Paediatrics Intensive Care Unit of Dayanand Medical College and Hospital, Ludhiana. Children between age group of 1 month to 18 years with thrombocytopenia, meeting the inclusion criteria were enrolled.

A total of 498 admissions were seen in Paediatrics ICU during the study period (1 September 2021 to 31 August 2022) out of which , One hundred and fifty six patients that met the inclusion criteria were enrolled .

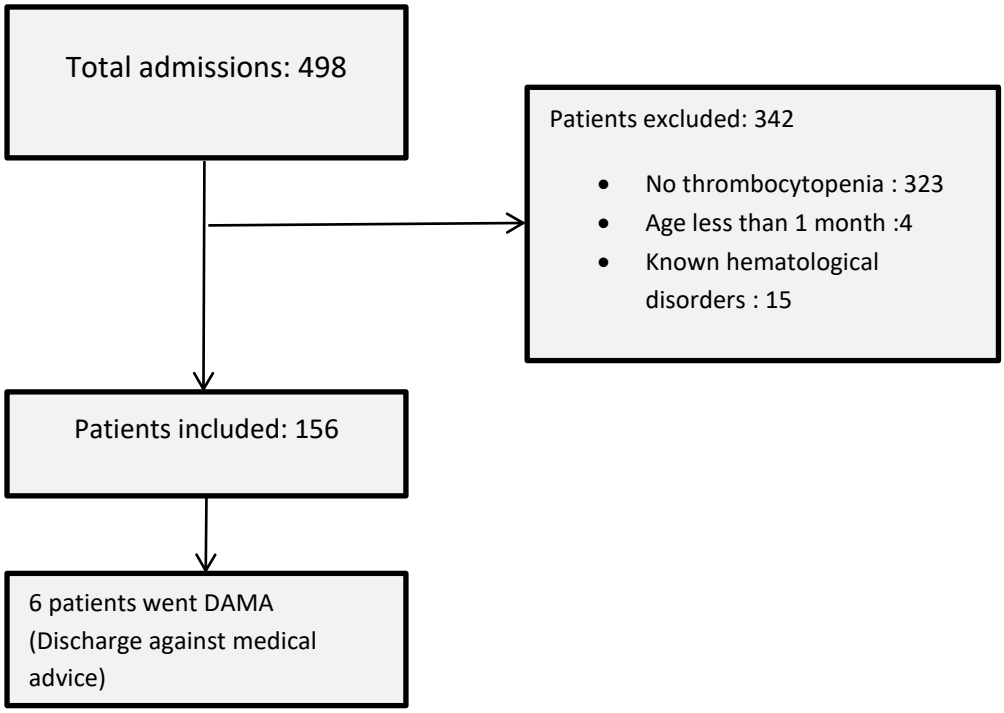

Total admissions: 498
Patients excluded: 342
No thrombocytopenia : 323
Age less than 1 month :4
Known hematological disorders : 15
Patients included: 156
6 patients went DAMA (Discharge against medical advice)

Figure 1: Selection of study group.

- **DEMOGRAPHICS AND CLINICAL PROFILE**

Age wise distribution of patients

The mean age of presentation in our study population was 93.11 months (S.D.59.87) or 7.8 Years (Range: 1 month to 18 years). Out of total 156 patients ,20 patients (12.8%) were between 1 month to 1 year of age , 42 patients (26.9%) were between 1 year to 5 years of age, 41 patients (26.3%) were between 5 years to 10 years of age and 53 patients (34%) were more than 10 years of age .

Table 1: Age wise distribution of patients

Age Group	No. of cases	Percentage
1 month – 1 year	20	12.8%
1 year – 5 year	42	26.9%
5 year – 10 year	41	26.3%
>10 year	53	34.0%
Total	156	100.0%

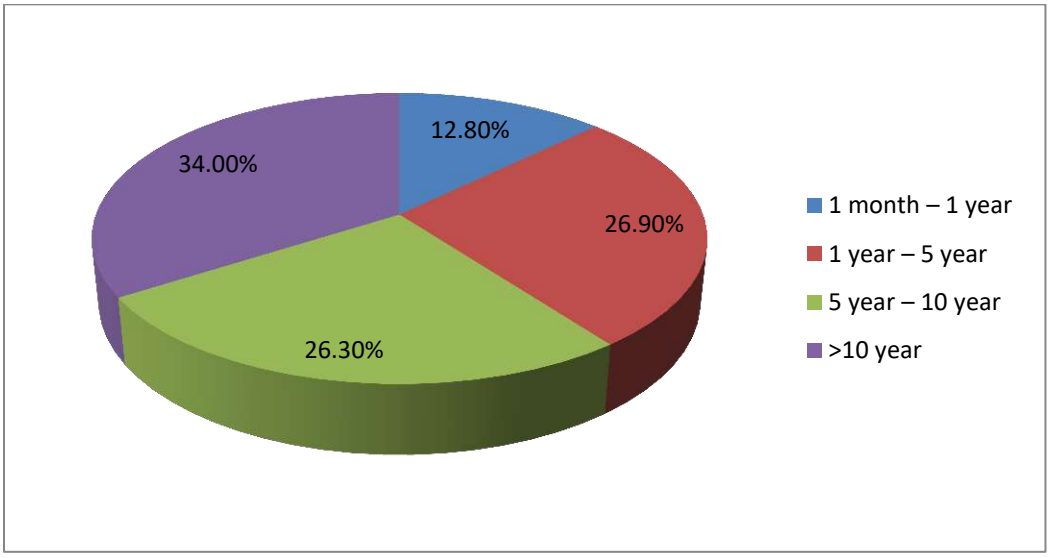


Figure 2: Age wise distribution of patients

Gender distribution of patients:

The Male to female ratio was 2.1:1**.** Total numbers of males in our study were 107 (68.6%) and females were 49 (31.4%).

Table 2: Gender distribution of patients

Gender	No. of cases	Percentage
Female	49	31.4%
Male	107	68.6%
Total	156	100.0%

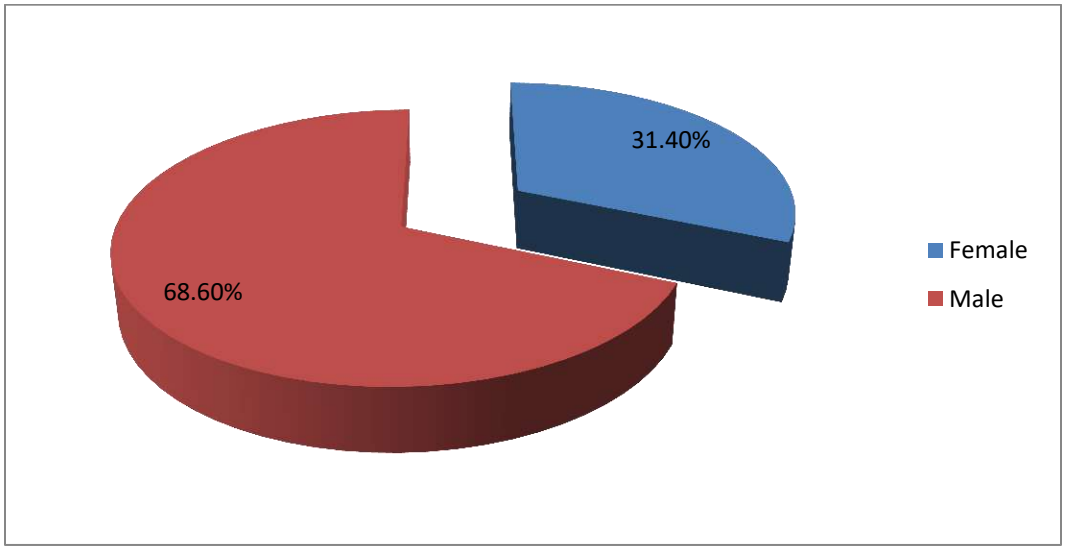


Figure 3: Gender distribution of patients

Primary system involved:

Amongst patients who presented with thrombocytopenia, 68 patients (43.6%) were admitted due to infections, out of which majority cases (50) were of dengue fever followed by 21 patients (13.5%) with central nervous system involvement, 15 patients (9.6%) with primarily gastrointestinal system abnormalities, 11 patients (7.1%) with respiratory system involvement, 10 patients (6.4%) were trauma patients which mainly requires surgical intervention, 9 patients (5.8%) had multiorgan involvement ,5 patients (3.2%) were having hepatic dysfunction , 5 patients (3.2%) had renal dysfunction , 3 patients (1.9%) were having endocrine disorder and 2 patients (1.3%) had autoimmune disorder .

Table 3: Primary system involved

Primary System	No. of cases	Percentage
Infectious	68	43.6%
CNS	21	13.5%
GIT	15	9.6%
Respiratory	11	7.1%
Surgical	10	6.4%
MODS	9	5.8%
Hepatic	5	3.2%
Renal	5	3.2%
CVS	4	2.6%
Endocrinology	3	1.9%
Other	3	1.9%
Autoimmune	2	1.3%
Total	156	100.0%

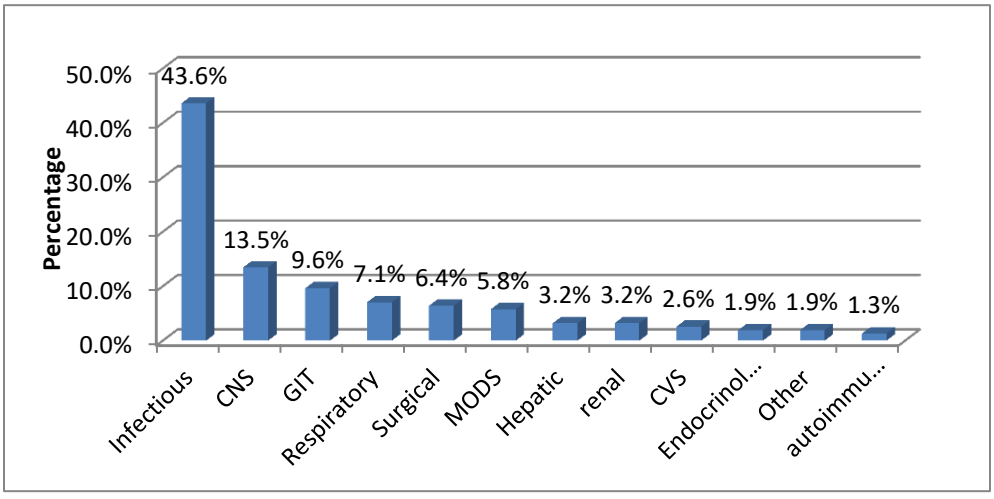


Figure 4: Primary system involved

PRISM II Score

PRISM II score was calculated for all the patients included in the study. The score was derived at the time of admission. It is based on 14 physiological variables like Glasgow coma scale ;pupillary reactions;systolic blood pressure (mmHg);diastolic blood pressure (mmHg) ;heart rate (beats per minute) ;respiratory rates (breaths per minute); PaCO2(mmHg);PaO2/FiO2 (mmHg) ;Coagulation profile ;glucose (mg/dl);potassium (Eq/L);Total bilirubin (mg/dl);calcium (mg/dl);and bicarbonate (mEq/L).

The mean score in our study was 18.96 (S.D.11.62). A PRISM II score of less than 10 was present in 48 patients (30.8%) and 108 patients (69.2%) had PRISM score > 10.

Table 4: PRISM score at admission

PRISM score	No. of cases	Percentage
<10	48	30.8%
>10	108	69.2%
Total	156	100.0%

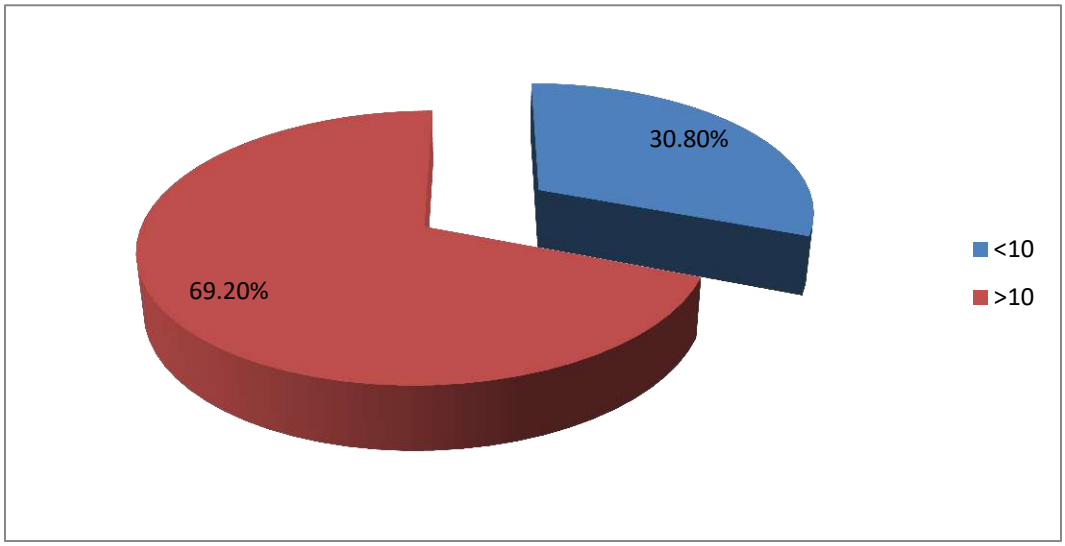


Figure 5: PRISM II at admission.

- **LABORATORY PARAMETERS:**

Hemoglobin

Complete blood count sample was sent for every patient at admission. The mean hemoglobin on day 1 of admission was 9.97 (S.D.2.93) with minimum hemoglobin at day 1 was 3.40 and maximum hemoglobin was 17.50. On day 3, blood analysis was done in 135 patients, mean hemoglobin was 9.54 (S.D.2.28) with minimum hemoglobin of 3.80 and maximum was 18.40. On day 7, blood analysis was done in 102 patients only, mean hemoglobin was 9.23 (S.D.1.64) with minimum hemoglobin of 5.10 and maximum was 12.90.

Table 5: Hemoglobin

Hb (gm/dl)	N	Minimum	Maximum	Mean	Std. Deviation
Hb(D 1)	156	3.40	17.50	9.97	2.93
Hb(D 3)	135	3.80	18.40	9.54	2.28
Hb(D 7)	102	5.10	12.90	9.23	1.64

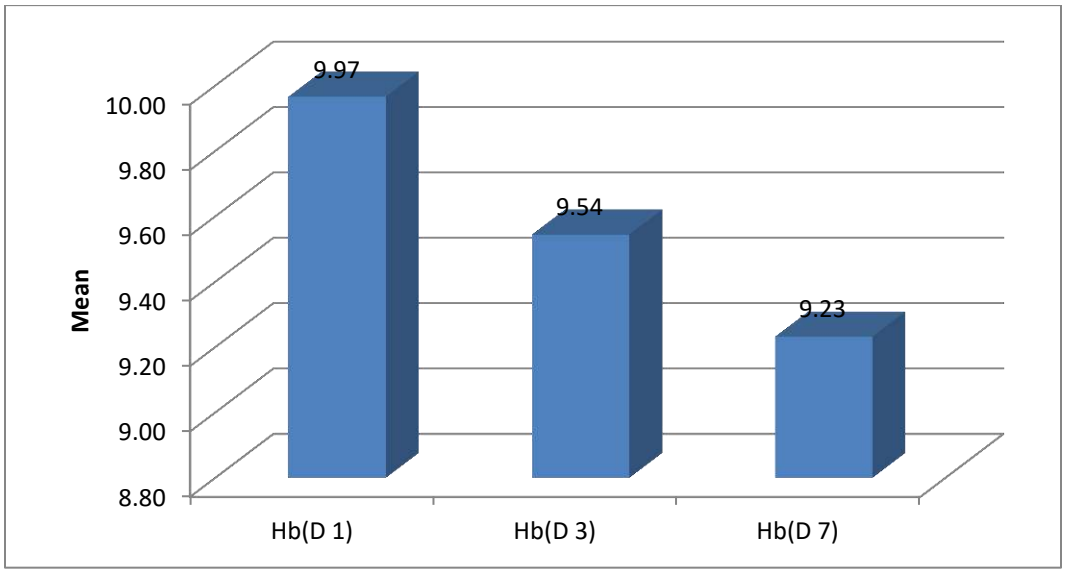


Figure 6: Hemoglobin

Platelet count:

On day 1, mean platelet count was 79.50 (S.D. 51.66), with minimum platelet count of 5 and maximum platelet count of 150. On day 3, mean platelet count was 88.44 (S.D. 60.46), with minimum platelet count of 10 and maximum of 301. On day 7, mean platelet count was 154.70(S.D 126.63) with minimum platelet count of 10 and maximum platelet count 709. There is gradual increase in platelet count in patients over the time of admission in paediatrics ICU.

Table 6: Platelet count

Platelet count (n x 10^9 / L)	N	Minimum	Maximum	Mean	Std. Deviation
Platelet count (D1)	156	5.00	150.00	79.50	51.56
Platelet count (D3)	135	10.00	301.00	88.44	60.46
Platelet count (D7)	102	10.00	709.00	154.70	126.63

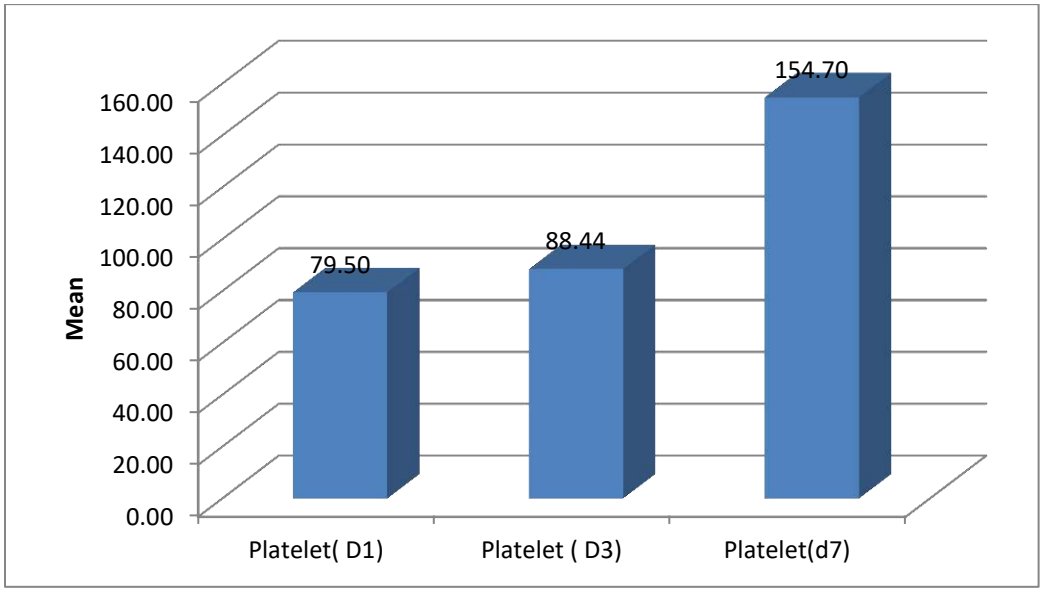


Figure 7: Platelet count

Difference in platelet count:

Difference in platelet count was calculated between day 1 and day 3 - Difference 1, Day 1 and day 7- Difference 2, Day 3 and day 7 - difference 3.

The mean difference between day 1 and day 3 was 10.05(S.D.52.72), with minimum difference of -136 and maximum of 187.

The mean difference between day 1 and day 7 was 73.37(S.D. 125.67) , with minimum difference of -120 and maximum of 619.

The mean difference between day 3 and day 7 was 64.42 (S.D. 124.13) , with minimum difference of -143 and maximum of 629.

There was maximum difference between day 1 and day 7 which was due to increase in platelet count over the time period.

Table 7: Platelet count difference

	N	Minimum	Maximum	Mean	Std. Deviation
Diff Platelet count (1)	135	-136.00	187.00	10.05	52.72
Diff Platelet count (2)	102	-120.00	619.00	73.37	125.67
Diff Platelet count (3)	102	-143.00	629.00	64.42	124.13

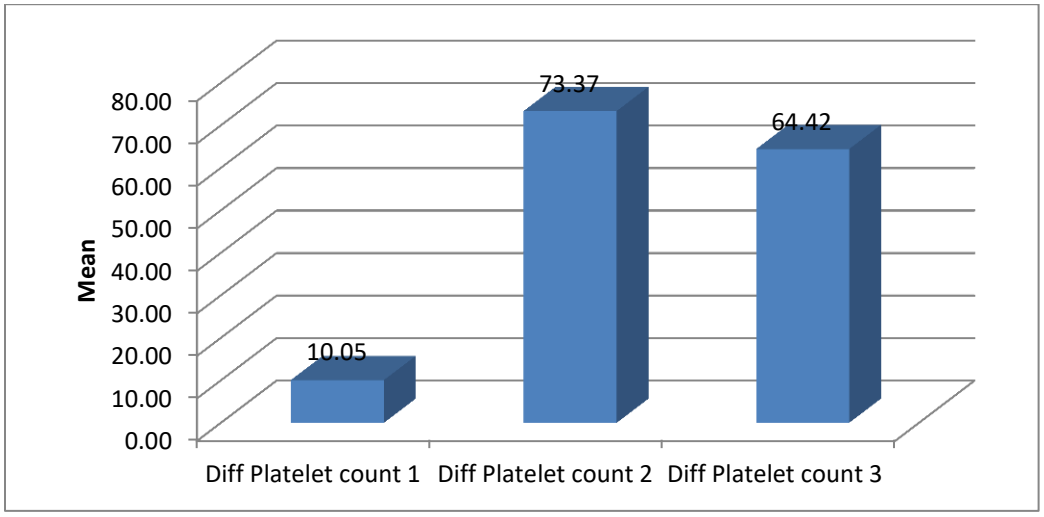


Figure 8: Platelet count difference

MPV:

On day 1, MPV was noted in all patients, Mean MPV was 10.02 (S.D.1.58), with minimum MPV of 6.50 and maximum MPV was 15.10. On day 3, mean MPV was 10.48 (S.D. 1.54), with minimum MPV of 6.70 and maximum was 15.40. On day 7, mean MPV was 10.45 (S.D. 1.65) with minimum MPV of 6.60 and maximum MPV was 16.10.

Table 8: MPV

MPV (fL)	N	Minimum	Maximum	Mean	Std. Deviation
MPV (D1)	156	6.50	15.10	10.02	1.58
MPV (D3)	135	6.70	15.40	10.48	1.54
MPV (D7)	102	6.60	16.10	10.45	1.65

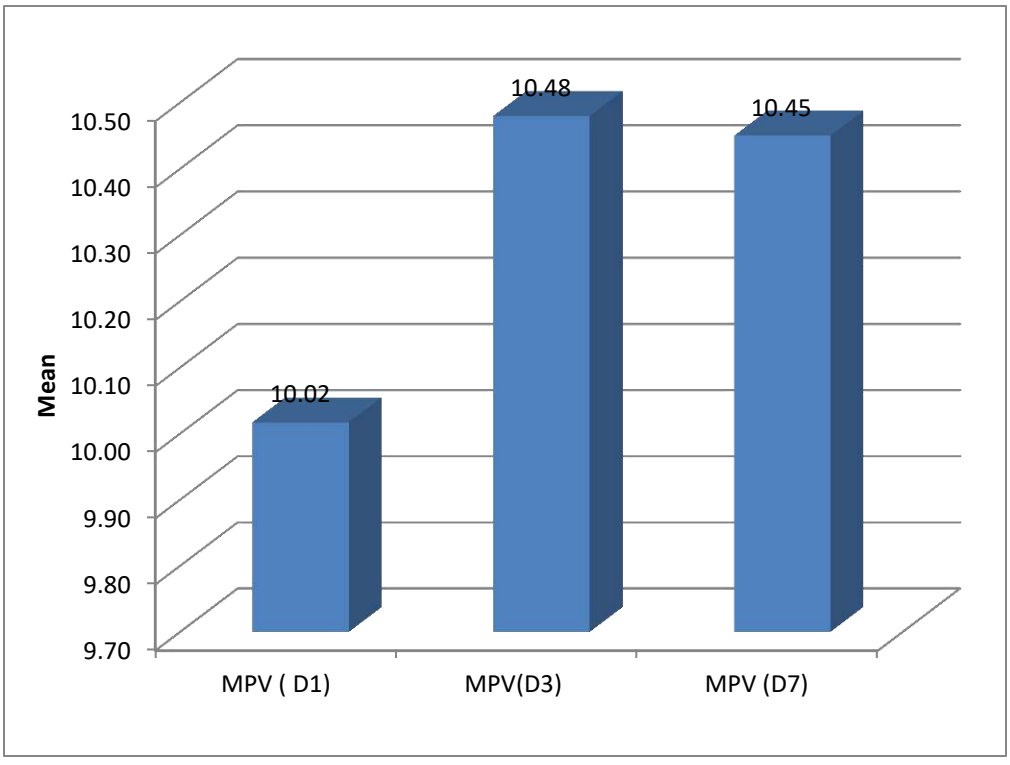


Figure 9: MPV

Difference in MPV:

Difference in MPV was calculated between day 1 and day 3 - Difference 1, Day 1 and day 7 - Difference 2, Day 3 and day 7 - difference 3. The mean difference between day 1 and day 3 was 0.59(S.D.1.59), with minimum difference of -4.50 and maximum of 5.80.The mean difference between day 1 and day 7 was 0.59(S.D. 1.77), with minimum difference of -4.10 and maximum of 4.80.The mean difference between day 3 and day 7 was -0.01 (S.D. 1.77), with minimum difference of -6.20 and maximum of 6.00.

Table 9: Difference in MPV

	N	Minimum	Maximum	Mean	Std. Deviation
Diff MPV(1)	135	-4.50	5.80	0.59	1.59
Diff MPV (2)	102	-4.10	4.80	0.59	1.77
Diff MPV (3)	102	-6.20	6.00	-0.01	1.77

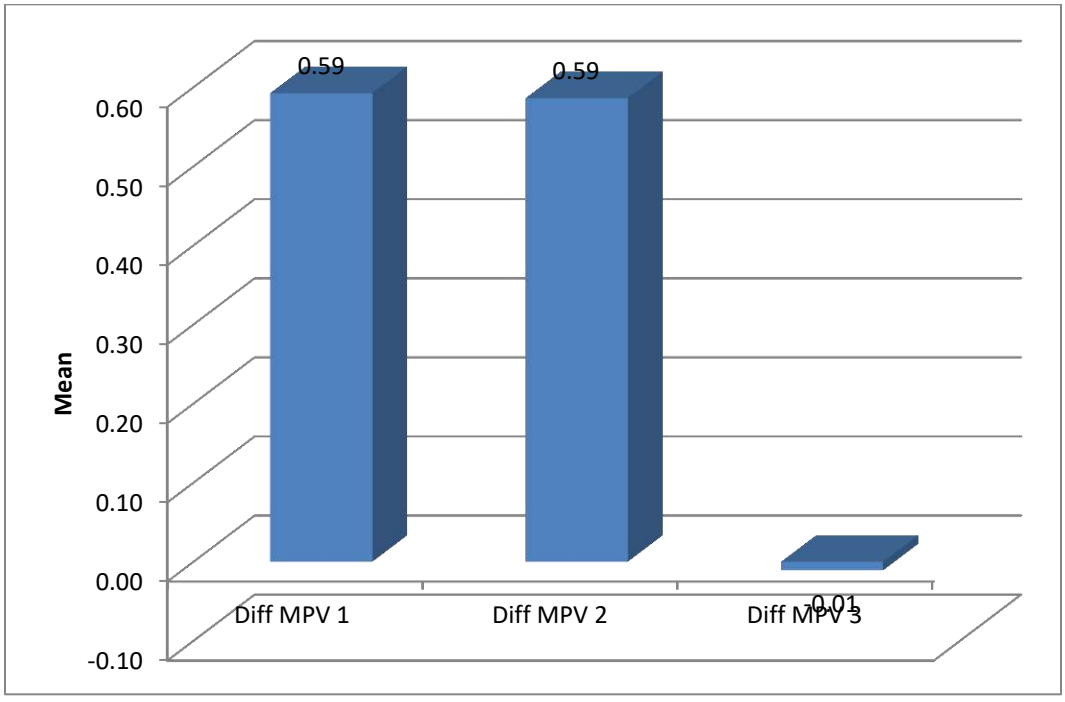


Figure 10: Difference in MPV

MPV / Platelet count ratio:

MPV / Platelet ratio was calculated in every patient enrolled on day 1. The mean ratio was 0.26 (S.D.0.28) with minimum ratio of 0.05 and maximum of 1.73. On day 3, mean ratio was 0.20 (S.D.0.17). Minimum ratio was 0.02 and maximum was 1.15.On day 7, mean ratio was 0.13 (S.D. 0.14), minimum ratio was 0.01 and maximum was 0.95. There is a gradual decrease in ratio from day 1 to day 7 which is mainly due to increase in platelet count.

Table 10: MPV / Platelet count ratio

	N	Minimum	Maximum	Mean	Std. Deviation
MPV/PLT 1	156	0.05	1.73	0.26	0.28
MPV/PLT 3	135	0.02	1.15	0.20	0.17
MPV/PLT 7	102	0.01	0.95	0.13	0.14

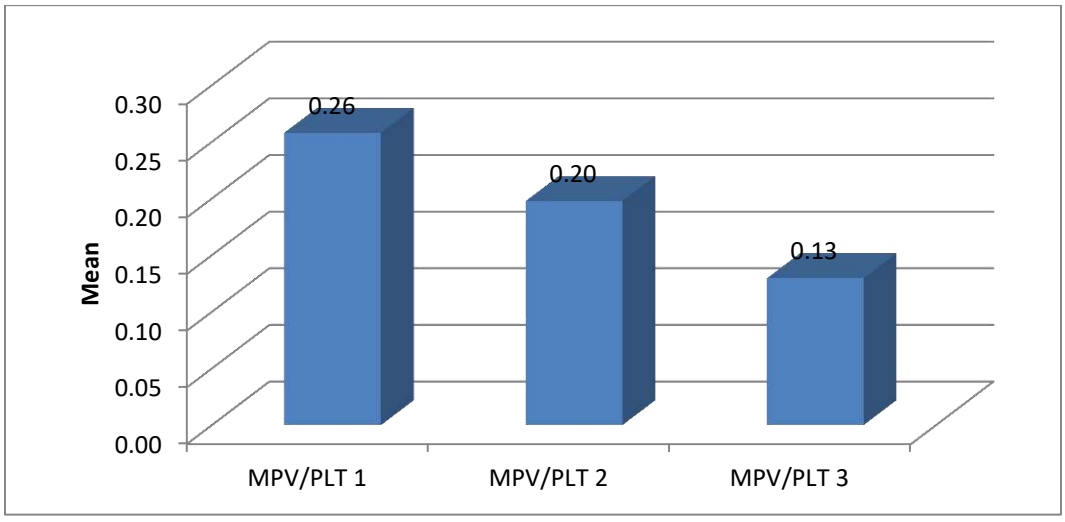


Figure 11: MPV / Platelet count ratio

- **MORBIDITY**

Ventilation requirement:

Among 156 patients, 92 patients (59%) require ventilation for respiratory support and 64 patients (41%) did not require any form of ventilation.

Table 11: Ventilation requirement

Ventilation	No. of cases	Percentage
No	64	41.0%
Yes	92	59.0%
Total	156	100.0%

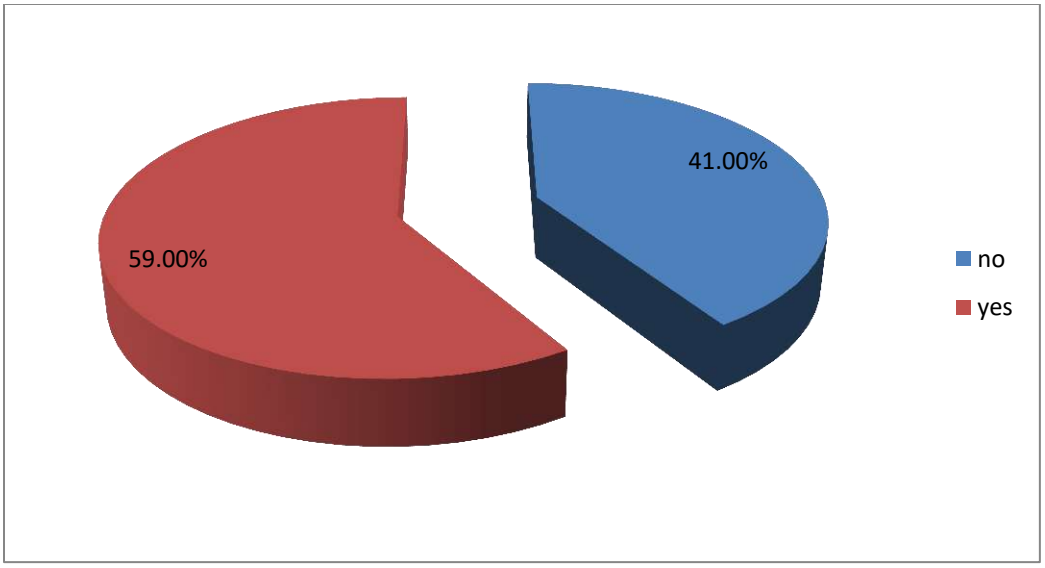


Figure 12: Ventilation Requirement

Inotrope requirement:

For management of shock, 85 patients (54.5%) required inotrope and 71patients (45.5%) did not require any inotropic agent.

Table 12: Inotrope requirement

Inotropes	No. of cases	Percentage
No	71	45.5%
Yes	85	54.5%
Total	156	100.0%

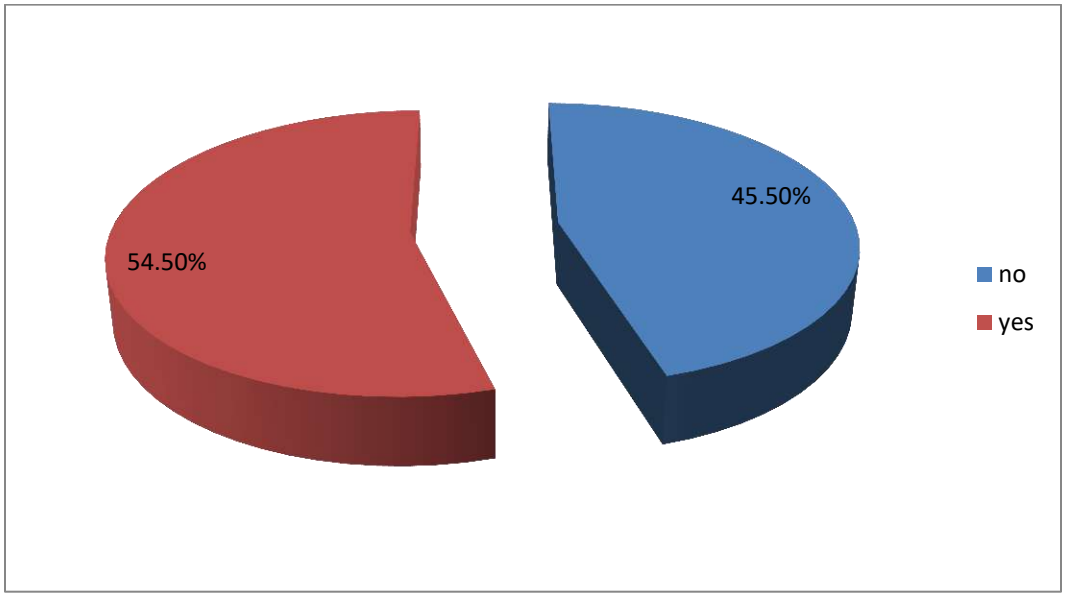


Figure 13: Inotrope requirement

OUTCOME:

In our study, 100 patients (64.1%) were discharged from ICU, 50 patients (32.1%) died and 6 patients (3.8%) went DAMA (discharged against medical advice).

Table 13: Final outcome

Outcome	No. of cases	Percentage
DAMA	6	3.8%
Died	50	32.1%
Shifted	100	64.1%
Total	156	100.0%

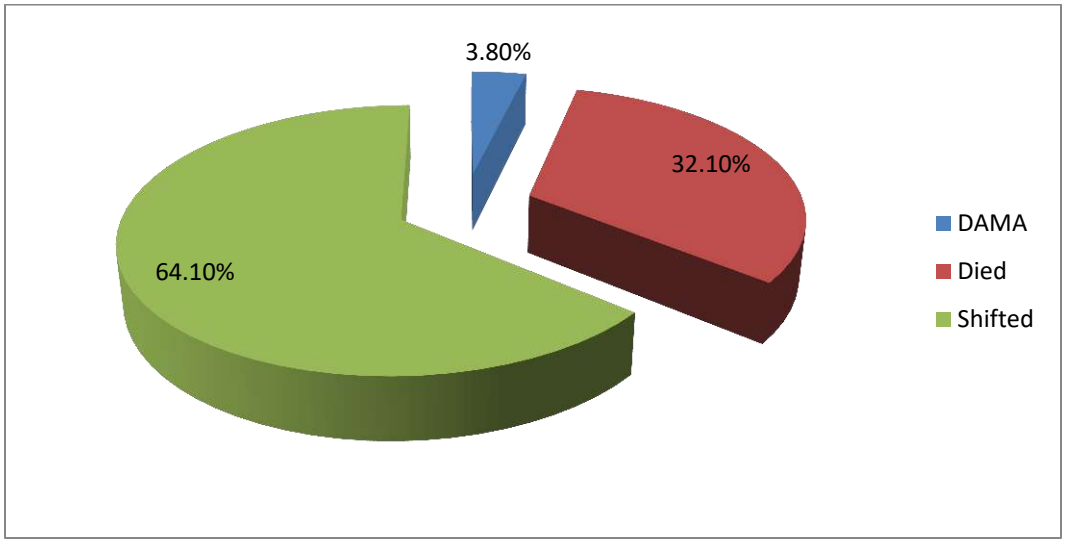


Figure 14: Final outcome

Hospital Stay

The mean duration of stay was 7.33 days (S.D.8.09). 20 patients (12.8%) had a stay of < 3 days and 96 patients (61.5%) had a stay of 3-7 days. 21 patients (13.5%) had a stay of 7-14 days and 19 patients (12.2%) had a stay of > 14 days. The minimum stay was 1 day and maximum stay was 68 days in our study.

Table 14: Duration of stay

Duration Of Stay GP	No. of cases	Percentage
< 3	20	12.8%
3-7 day	96	61.5%
7-14 day	21	13.5%
> 14day	19	12.2%
Total	156	100.0%

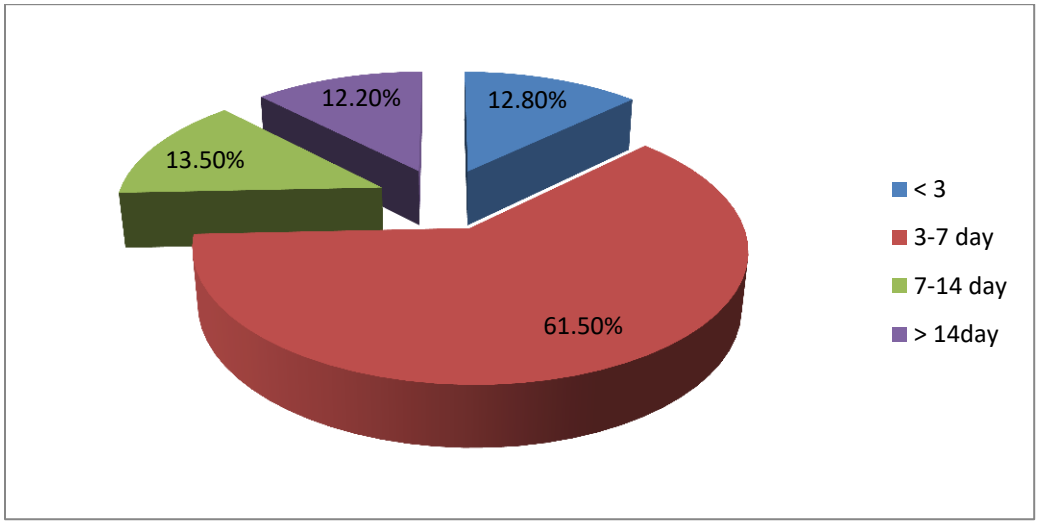


Figure 15: Duration of stay

- **DEMOGRAPHICS ,CLINICAL PROFILE AND OUTCOME :**

Effect of age on outcome

In our study, out of total 150 patients, excluding the 6 patients that went DAMA, 19 were in the age group of 1 month – 1 year. In this group, 7 patients (36.8%) survived and were shifted from PICU whereas 12 patients (63.2%) died. In age group of 1 year – 5 year, there were total 40 patients, out of which 20 patients (50%) survived and were shifted from PICU whereas 20 patients (50%) died. In age group of 5 years – 10 years, there were total 40 patients, out of which, 27 patients (64.5%) survived and were shifted whereas 13 patients (32.5%) died. There were total 51 patients in age group of > 10 years , out of which 46 patients (90.2%) survived and were shifted whereas 5 patients (9.8%) died .The study of effect of age on the outcome came to be significant ($p < 0.05$) . In our study, maximum expiry (63.2%) occurs in age group of 1 month – 1 year and best outcome was in age group of > 10 years. The mean age of patients that were shifted from PICU was 108.51 months (S.D.58.07) whereas mean age in patients who died was 63.12(S.D.50.21) .The relationship of mean age and outcome came to be significant ($p < 0.05$) .

Table 15: Effect of age on outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
AGE GROUP	1 month - 1 year	12	63.2%	7	36.8%	19	25.324	0.001
	1 year- 5 year	20	50.0%	20	50.0%	40		
	5 year- 10 year	13	32.5%	27	67.5%	40		
	> 10 year	5	9.8%	46	90.2%	51		
Total		50	33.3%	100	66.7%	150		

Table16: Effect of mean age on outcome

	Expired		Shifted		Z	p-value
	Mean	SD	Mean	SD		
Age (Months)	63.12	50.21	108.51	58.07	-4.714	0.001

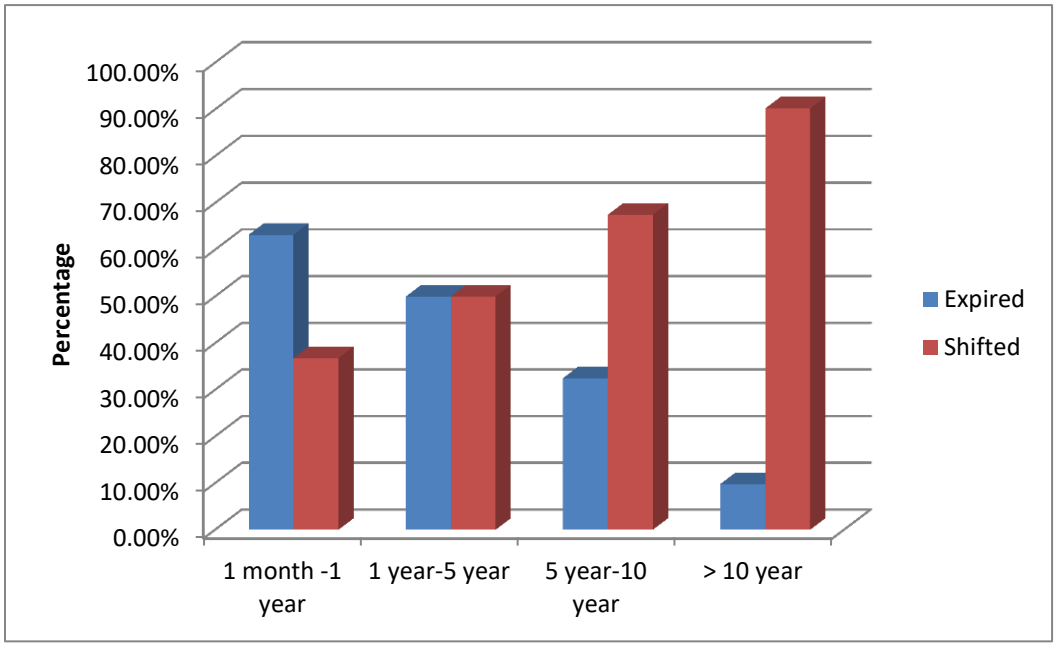


Figure 16: Effect of age on outcome

Effect of gender on outcome

Among 150 patients, there were 48 females, out of which 26 female patients (54.2%) survived and were shifted from PICU, and 22 female patients (45.5%) died. There were 102 male patients in our study, out of which 74 patients (72.5%) survived and 28 male patients (27.5%) died. The relation of gender with final outcome shows a p value of 0.026 which is significant .In our study, female patients has poor outcome.

Table 17: Effect of gender on outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
Sex	Female	22	45.8%	26	54.2%	48	4.963	0.026
	Male	28	27.5%	74	72.5%	102		
Total		50	33.3%	100	66.7%	150		

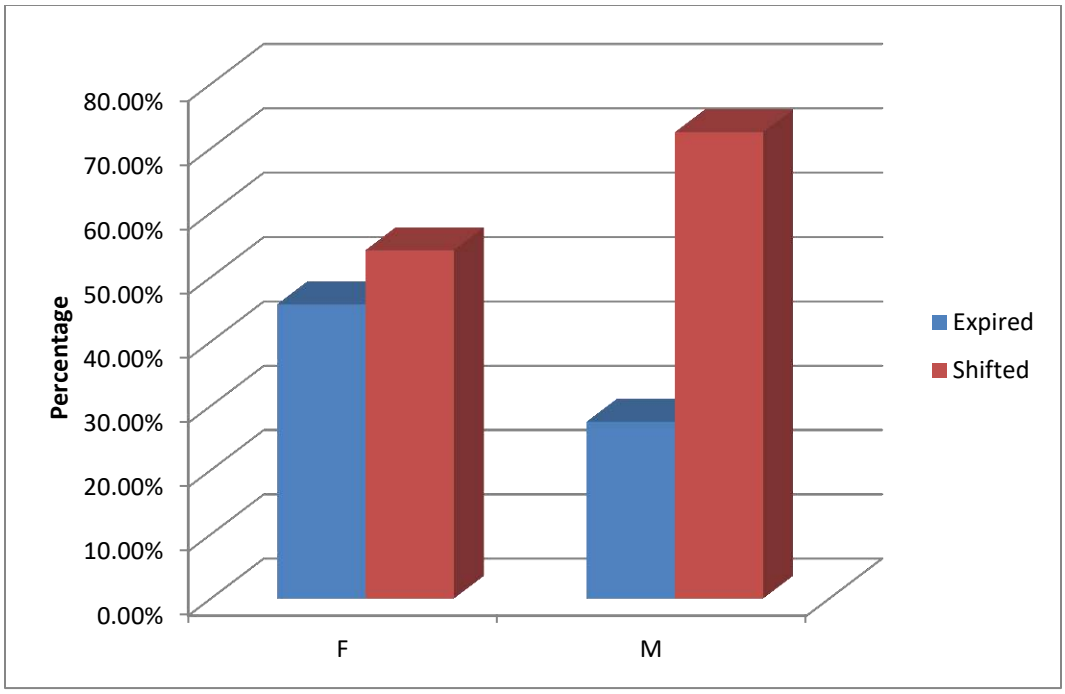


Figure 17: Effect of gender on outcome

Effect of primary system involved and outcome

Amongst patients who presented with thrombocytopenia, 68 patients (43.6%) were admitted due to infections, out of which majority cases (50) were of dengue fever. In these patients 23 patients (34.3%) died and 44 patients (65.7%) survived and were shifted from PICU. Most common system involved was central nervous system with 21 patients (13.5%), out of which 2 patients (10.5%) died and 17 patients (89.5%) survived. There were 15 patients (9.6%) with primarily gastrointestinal system abnormalities. In these patients 8 patients (57.1%) died and 6 patients (42.9%) survived. Out of 11 patients (7.1%) with respiratory system involvement, 7 patients (63.6%) died and 4 patients (36.4%) survived. There were 10 patients (6.4%) with trauma which mainly requires surgical intervention out of which 4 patients (44.4%) died and 5 patients (5.6%) survived and were shifted from PICU. There were 9 patients (5.8%) who had multi organ involvement out of which 2 patients (22.2%) died and 7 patients (77.8%) were shifted from PICU. Hepatic dysfunction was present in 5 patients (3.2%) and all patients survived. There were 5 patients (3.2%) with renal dysfunction out of which 1 patient (25.0%) died and 3 patients (75%) died. Endocrine disorder was present in 3 patients (1.9%) , In these patients ,1 patient (33.3%) died and 2 patients(66.7%) survived and were shifted from PICU . Autoimmune disorder was present in 2 patients (1.3%) and both patients were shifted from PICU. Patients with respiratory disorders had poor outcome followed by patients with gastrointestinal abnormality, surgical cases and then patients with infections. But the outcome and primary system involved had no significant relation.

Table 18: Effect of primary system involved and outcome

		Outcome				Total	Chi-square value	p-value
		Expired	Expired	Shifted	Shifted			
Primary System	Infectious	23	34.3%	44	65.7%	67	19.219	0.057
	CNS	2	10.5%	17	89.5%	19		
	GIT	8	57.1%	6	42.9%	14		
	Respiratory	7	63.6%	4	36.4%	11		
	MODS	2	22.2%	7	77.8%	9		
	Surgical	4	44.4%	5	55.6%	9		
	Hepatic	0	0.0%	5	100.0%	5		
	CVS	2	50.0%	2	50.0%	4		
	Renal	1	25.0%	3	75.0%	4		
	Endocrinology	1	33.3%	2	66.7%	3		
	Other	0	0.0%	3	100.0%	3		
	Autoimmune	0	0.0%	2	100.0%	2		
Total		50	33.3%	100	66.7%	150		

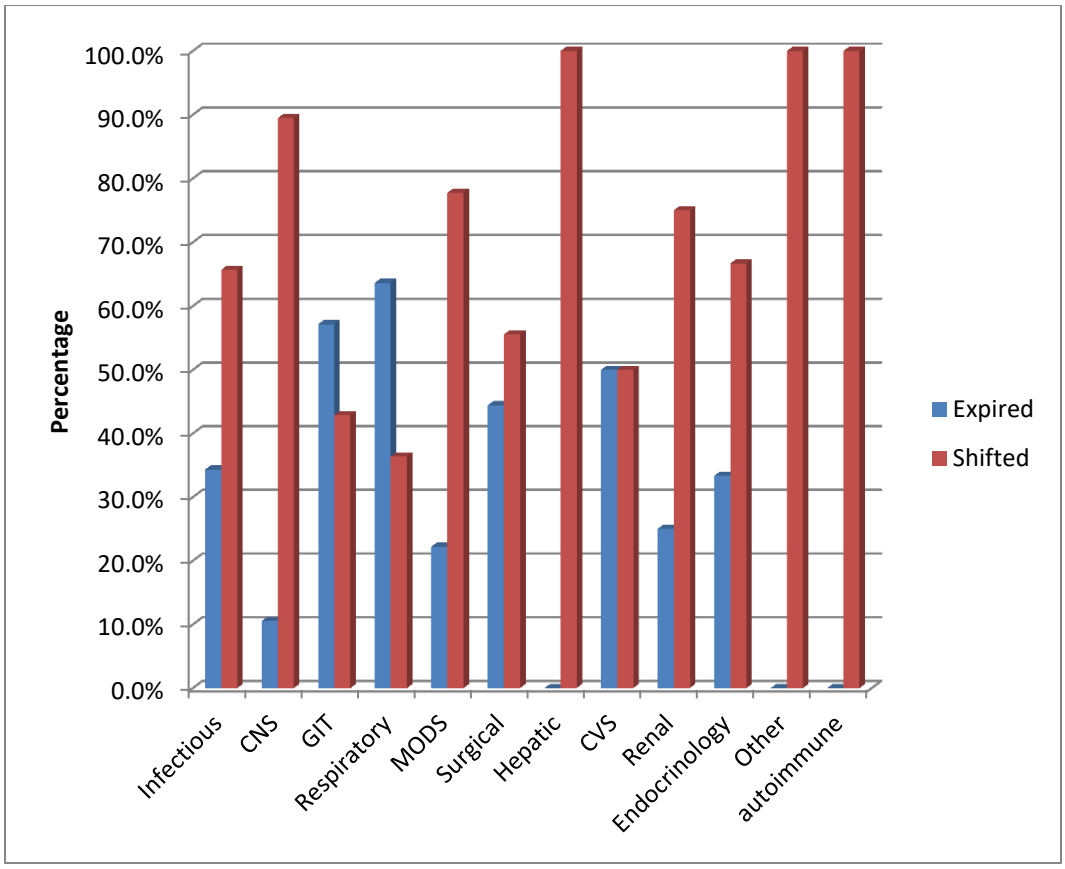


Figure 18: Effect of primary system involved and outcome

PRISM score and outcome:

In our study, patients were divided into two groups, in one group PRISM score was < 10 and in other it was > 10. OSut of 48 patients with PRISM score of < 10, 48 patients (100%) were shifted whereas out of 102 patients with PRISM score > 10, 52 patients (51.0%) were shifted and 50 patients (49.0%) died. The relation between PRISM score and final outcome has p value of 0.001 which is significant (<0.05).

Table 19: PRISM score and outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
PRISM	1(<10)	0	0.0%	48	100.0%	48	35.294	0.001
	2(>10)	50	49.0%	52	51.0%	102		
Total		50	33.3%	100	66.7%	150		

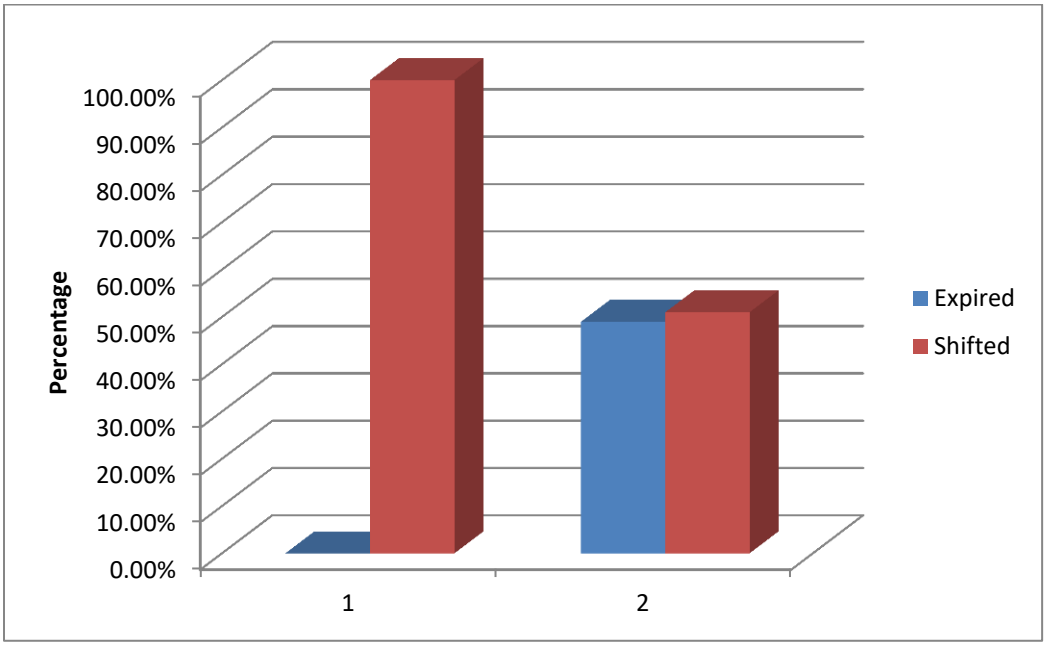


Figure 19: PRISM score and outcome

• **LABORATORY PARAMETERS AND OUTCOME:**

Hemoglobin and outcome:

On day 1 Mean Hemoglobin was 9.72 (S.D. 2.84) in patients who survived and mean Hemoglobin in patients who died was 10.20(S.D.2.97) .On day 3 mean Hb in patients who survived was 9.59(S.D. 2.57) and mean Hb in patients who died 10.19 (S.D. 6.18). On day 7 mean Hb in patients who survived was 9.02 (S.D. 2.03) and in patients who died was 9.23 (S.D. 1.52).

Table 20: Hemoglobin and outcome

Hemoglobin (Hb)	Expired		Shifted		Z	p-value
	Mean	SD	Mean	SD		
Hb(D 1)	10.20	2.97	9.72	2.84	0.953	0.342
Hb(D 3)	10.19	6.18	9.59	2.57	0.554	0.581
Hb(D 7)	9.23	1.52	9.02	2.03	0.537	0.593

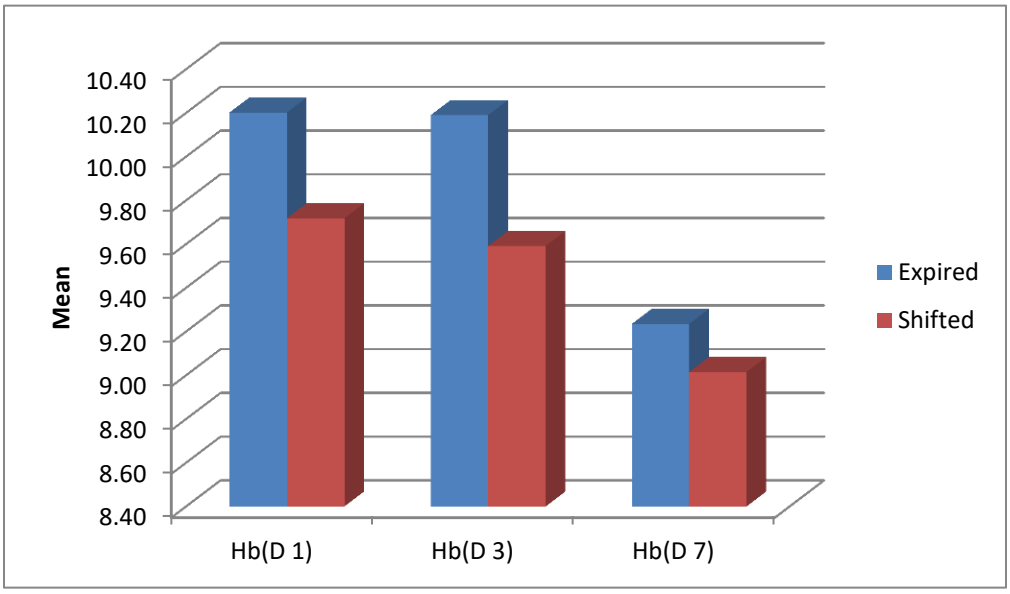


Figure 20: Hemoglobin and outcome

Platelet count and outcome : For all patients admitted to PICU with thrombocytopenia , platelet count was assessed on day 1 , day 3 , and day 7 of PICU stay .In patients who were shifted from PICU , platelet count has a rising trend ,on day 1 was mean value was 78.75 (S.D. 52.33) , day 3 89.07(S.D.58.07), day 7 156.32 (S.D.101.29) . The increase in platelet count over day 1, day 3 and day 7 in patients who survived has a significant p value of 0.000. (<0.05).

Table 21: Platelet count and outcome

		Day 1		Day 3		Day 7		F	p-value
Shifted (N 100)		Mean	SD	Mean	SD	Mean	SD		
	Platelet count	78.75	52.33	89.07	58.07	156.32	101.29	29.229	0.000

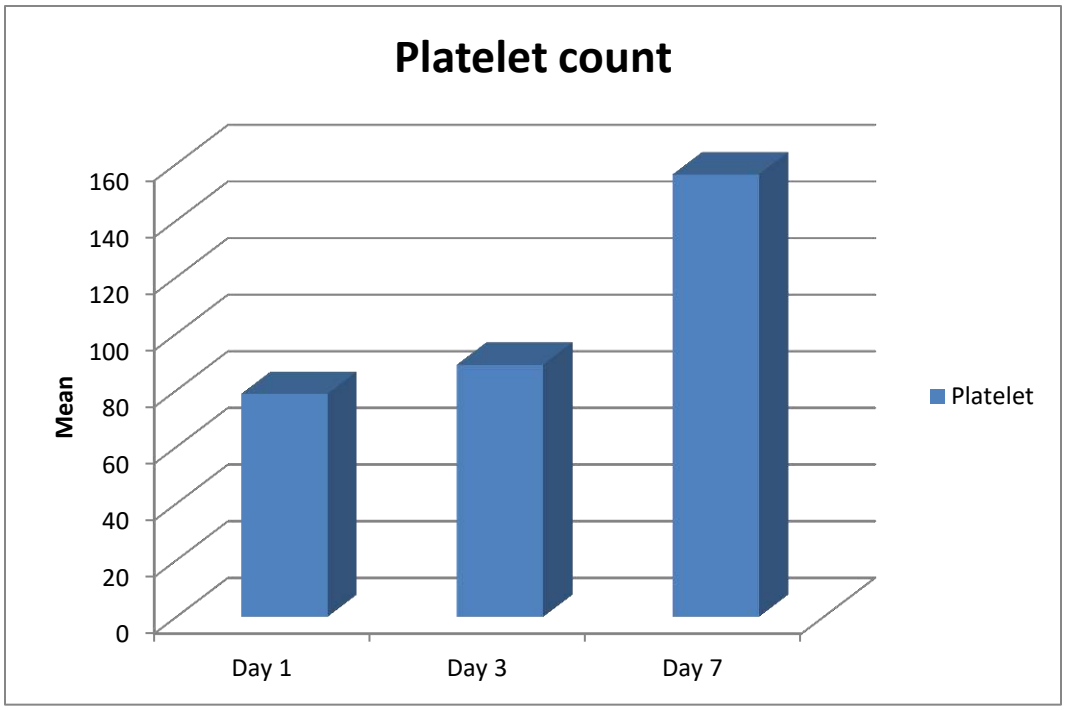


Figure 21: Platelet count and outcome

Platelet count difference and outcome:

For all the patients admitted to PICU with thrombocytopenia, difference in platelet count was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day7. In patients who were shifted from PICU had a significant difference in platelet count due to increase in platelet count. The mean difference between day 1 and day 3 was 12.39 (S.D.45.13) , day 1 and day 7 was 79.29 (S.D.99.59) , day 3 and day 7 was 69.01(S.D. 94.13). Maximum difference was between day 1 and day 7 . The p value came to be 0.000 which is significant .

In patients who died mean difference between day 1 and day 3 was 6.77(S.D. 70.70) , day 1 and day 7 was 66.90 (S.D.203.83) , day 3 and day7 was 58.40 (S.D.212.10) . The difference between change in platelet count has a p value of 0.316 which is not significant (p >0.05) .

Table 22: Platelet count difference and outcome

		1		2		3		F	p-value
		Mean	SD	Mean	SD	Mean	SD		
Shifted (100)	Diff Platelet count	12.39	45.13	79.29	99.59	69.01	94.13	17.370	0.000
Expired (50)	Diff Platelet count	6.77	70.70	66.90	203.83	58.40	212.10	1.171	0.316

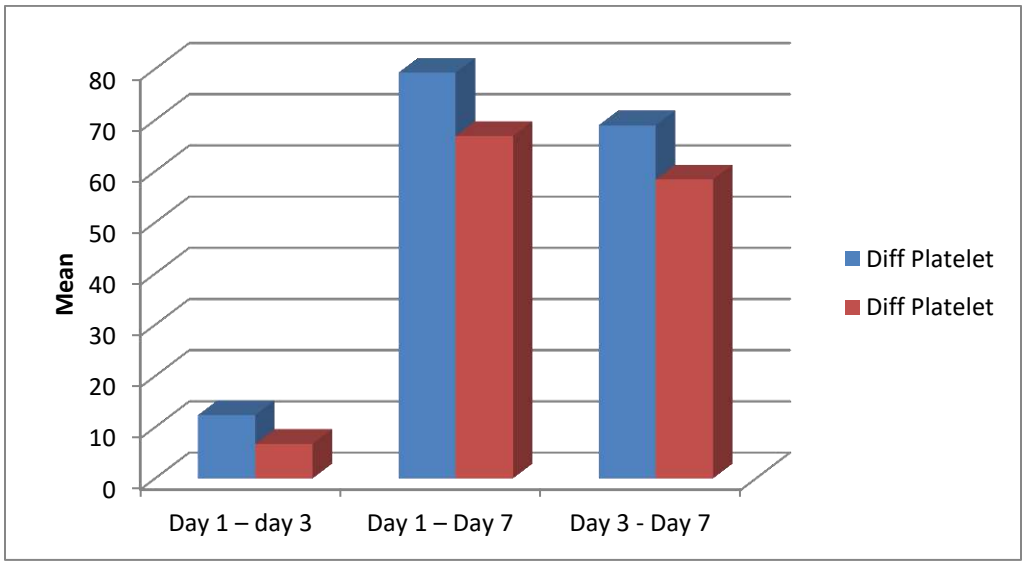


Figure 22: Platelet count difference and outcome

Platelet count subgroup and outcome

Patients were subdivided with respect to severity of thrombocytopenia. Among 100 patients who survived , 42 patients (42%) had platelet count <50,000, 15 patients (15%) had platelet count between 50,000-1,00,000 and 43 patients (43%) had platelet count > 1,00,000.In 50 patients who died , 19 patients (38%) had platelet count < 50,000 , 14 patients (28%) had platelet count between 50,000-1,00,000 and 17 patients (34%) had platelet count > 1,00,000.There is relatively good outcome in patients with platelet count of > 1,00,000 but relation of outcome and platelet count subgroup had no significant association .

Table 23: Platelet count subgroup and outcome

	PLT	< 50,000		50,000-1,00,000		> 1,00,000		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age	No. of cases	%age			
outcome	Shifted	42	42.00%	15	15.00%	43	43.00%	100	3.72	0.156
	Expired	19	38.00%	14	28.00%	17	34.00%	50		
Total		61	40.67%	29	19.33%	60	40.00%	150		

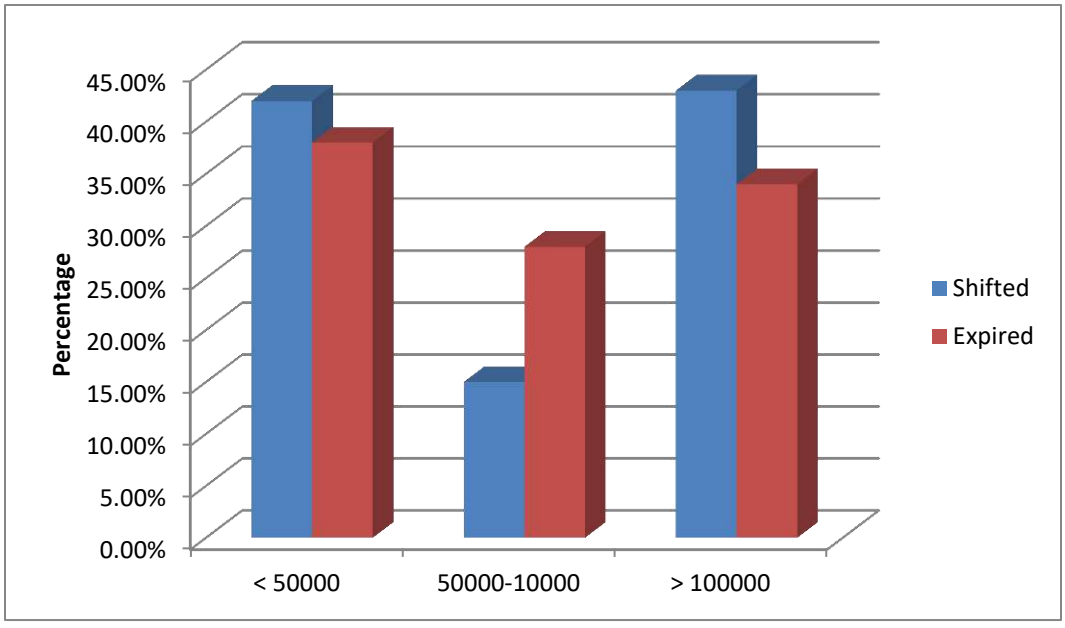


Figure 23: Platelet count subgroup and outcome

MPV and outcome:

In our study, for all the patients admitted to PICU with thrombocytopenia, serial CBC monitoring was done. In patients who survived and were shifted from PICU, mean value of MPV done on day 1 was 10.10(S.D.1.57), Day 2 10.55(S.D. 1.57) and day 7 10.61(S.D.1.66). The change in MPV in shifted patients over the PICU stay has a p value of 0.061 which is not significant (p >0.05).In patients who expired, mean value of MPV on day 1 was 9.98 (S.D.1.64), Day 2 10.40(S.D. 1.49), Day 7 10.02(S.D .1.61). The change in MPV in patients who died has a p value of 0.463 which is not significant. (p > 0.05) .

Table 24: MPV and outcome

		Day 1		Day 3		Day 7		F	p-value
		Mean	SD	Mean	SD	Mean	SD		
Shifted (100)	MPV	10.10	1.57	10.55	1.57	10.61	1.66	2.824	0.061
Expired (50)	MPV	9.98	1.64	10.40	1.49	10.02	1.61	0.776	0.463

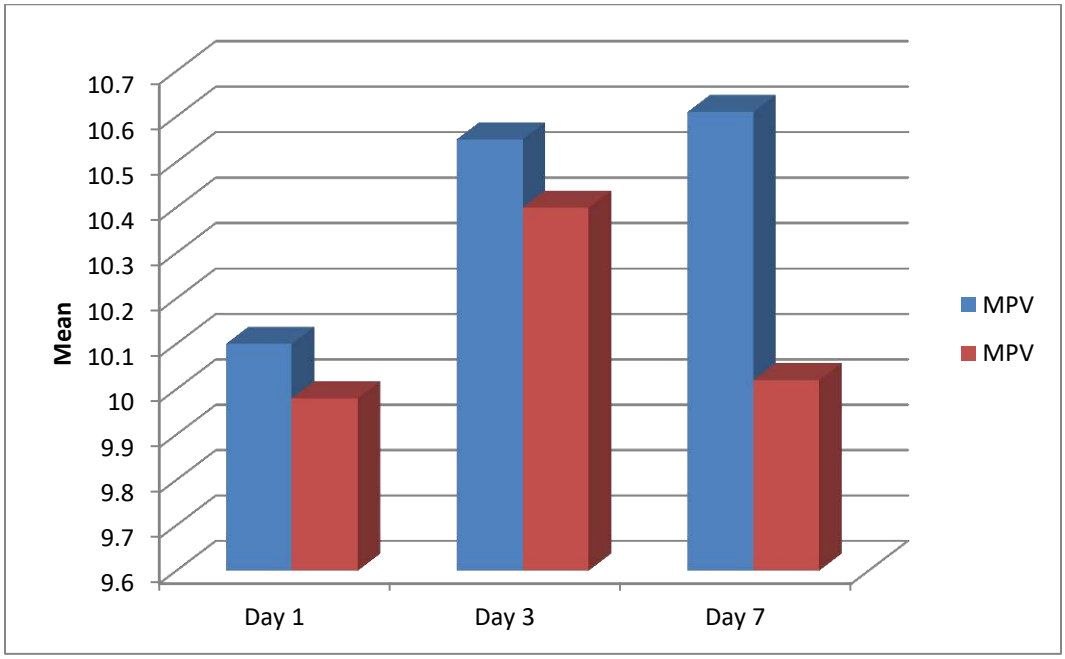


Figure 24: MPV and outcome

Difference in MPV and outcome:

For all the patients admitted to PICU with thrombocytopenia, difference in MPV was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day7. In patients who survived and were shifted from PICU, The mean difference between day 1 and day 3 was 0.51 (S.D.1.62), day 1 and day 7 was 0.54 (S.D.1.85), day 3 and day 7 was 0.03(S.D. 1.81). The p value came to be 0.126 which is not significant (p>0.05). In patients who died mean difference between day 1 and day 3 was 0.74(S.D.1.58), day 1 and day 7 was 0.69 (S.D.1.45), day 3 and day 7 was -0.16 (S.D.1.61). The p value came to be 0.102 which is not significant (p > 0.05).

Table 25: Difference in MPV and outcome

		Day 1 – day 3		Day 1 – Day 7		Day 3 - Day 7		F	p-value
		Mean	SD	Mean	SD	Mean	SD		
Shifted (100)	Diff MPV	0.51	1.62	0.54	1.85	0.03	1.81	2.091	0.126
Expired (50)	Diff MPV	0.74	1.58	0.69	1.45	-0.16	1.61	2.356	0.102

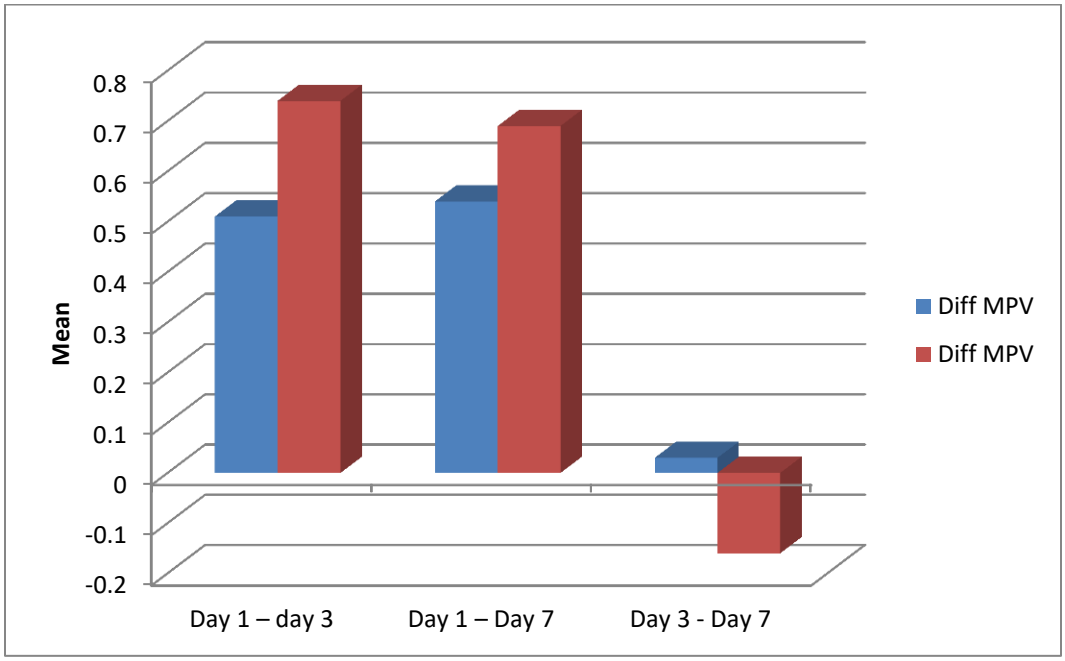


Figure 25: Difference in MPV and outcome

MPV / Platelet count ratio and outcome:

For all the patients, MPV to platelet ratio was calculated on day 1, day 3 and day 7 of PICU stay. In patients who survived and were shifted from PICU, Mean value of ratio on day 1 was 0.27 (S.D. 0.30), day 3 was 0.18(S.D. 0.13), day 7 was 0.12(S.D. 0.13). In patients who died, mean ratio on day 1 was 0.26(S.D.0.27), day 3 was 0.24(S.D.0.25), day 7 was 0.19(S.D.0.18). There is fall in ratio from day 1 to day 7 but the significant fall occurs on day 7 in patient who survived. The p value in shifted patients on day 7 came to be 0.048 which is significant ($p<0.05$).

Table 26: MPV / Platelet count ratio and outcome

	Expired		Shifted		Z	p-value
	Mean	SD	Mean	SD		
MPV/PLT 1	0.26	0.27	0.27	0.30	-0.234	0.815
MPV/PLT 3	0.24	0.25	0.18	0.13	1.778	0.078
MPV/PLT 7	0.19	0.18	0.12	0.13	2.003	0.048

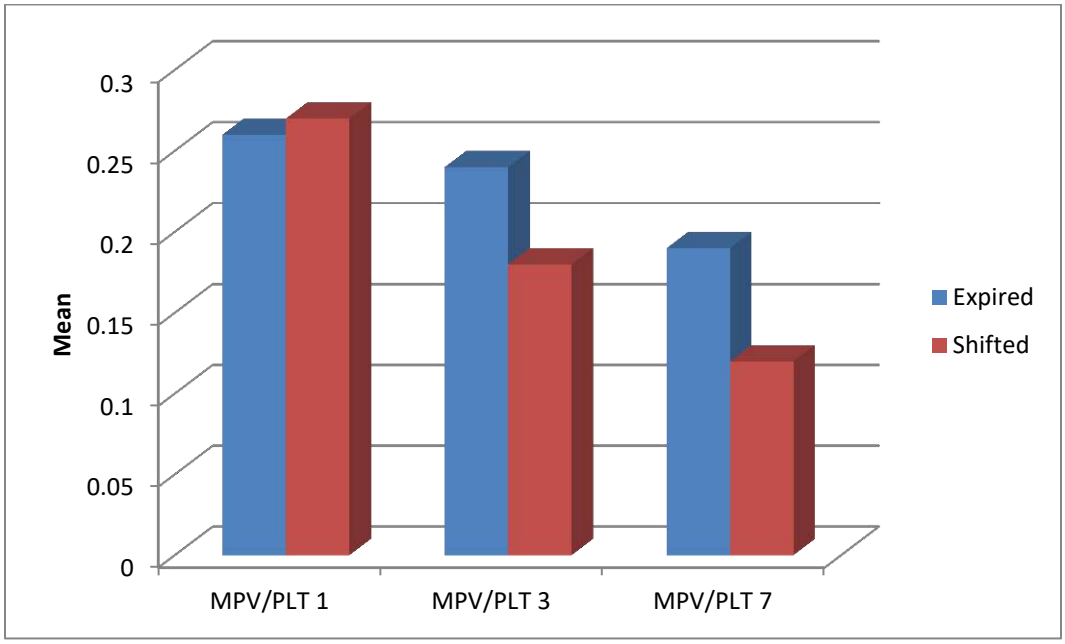


Figure 26: MPV / Platelet count ratio and outcome

Difference in MPV / Platelet count ratio and outcome

In our study, difference in MPV/ Platelet count ratio was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day7. In patients who survived and were shifted from PICU, The mean difference between day 1 and day 3 was 0.27 (S.D.0.30), day 1 and day 7 was 0.18 (S.D.0.13), day 3 and day 7 was 0.12(S.D. 0.13). The p value came to be 0.000 which is significant ($p<0.05$). In patients who died mean difference between day 1 and day 3 was 0.26(S.D.0.27), day 1 and day 7 was 0.24 (S.D.0.25), day 3 and day 7 was 0.19 (S.D.0.18) . The p value came to be 0.579 which is not significant ($p >0.05$) .

Table 27: Difference in MPV / Platelet count ratio and outcome

		Day1–day 3		Day1–Day 7		Day3-Day 7		F	p-value
		Mean	SD	Mean	SD	Mean	SD		
Shifted (100)	MPV/PLT	0.27	0.30	0.18	0.13	0.12	0.13	11.911	0.000
Expired (50)	MPV/PLT	0.26	0.27	0.24	0.25	0.19	0.18	0.550	0.579

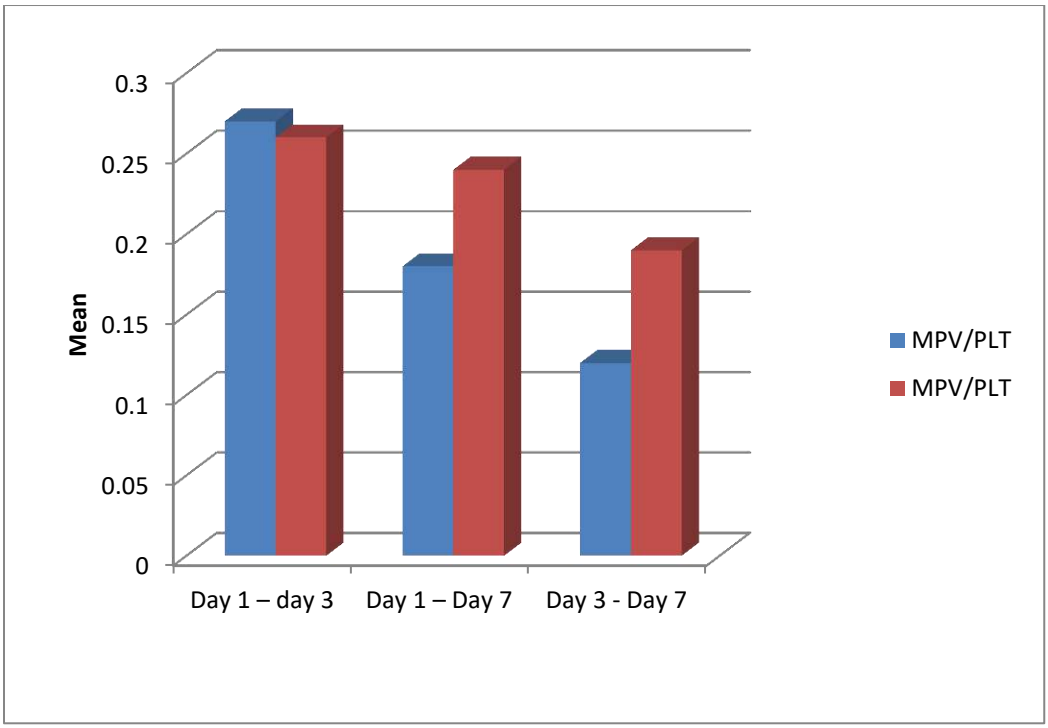


Figure 27: Difference in MPV / Platelet count ratio and outcome

MPV sub group and outcome

The patients admitted to PICU with thrombocytopenia were divided into 3 groups with respect to MPV values – Low MPV < 6.5, Normal MPV 6.5-11.6 and high MPV > 11.6. Out of total 100 patients who survived , only 2 patients (2 %) had MPV < 6.5, 80 patients (80.0%) had normal MPV range of 6.5 -11.6 , 18 patients (18 %) had high MPV > 11.6 . Total 50 patient who died, 2 patients (4 %) had low MPV < 6.5, 41 patients (82.0%) had normal range of MPV (6.5-11.6), 7 patients (14%) had high MPV > 11.6. The relation between different groups of MPV and outcome has a p value of 0.682 which is not significant (P>0.05).

Table 28: MPV sub group and outcome

		Outcome						Total	Chi-square value	p-value
		Shifted		Expired		DAMA				
MPV	< 6.5	2	2.0%	2	4.0%	0	0.0%	4	2.294	0.682
	6.5-11.6	80	80.0%	41	82.0%	6	100.0%	127		
	> 11.6	18	18.0%	7	14.0%	0	0.0%	25		
Total		100	100.0%	50	100.0%	6	100.0%	156		

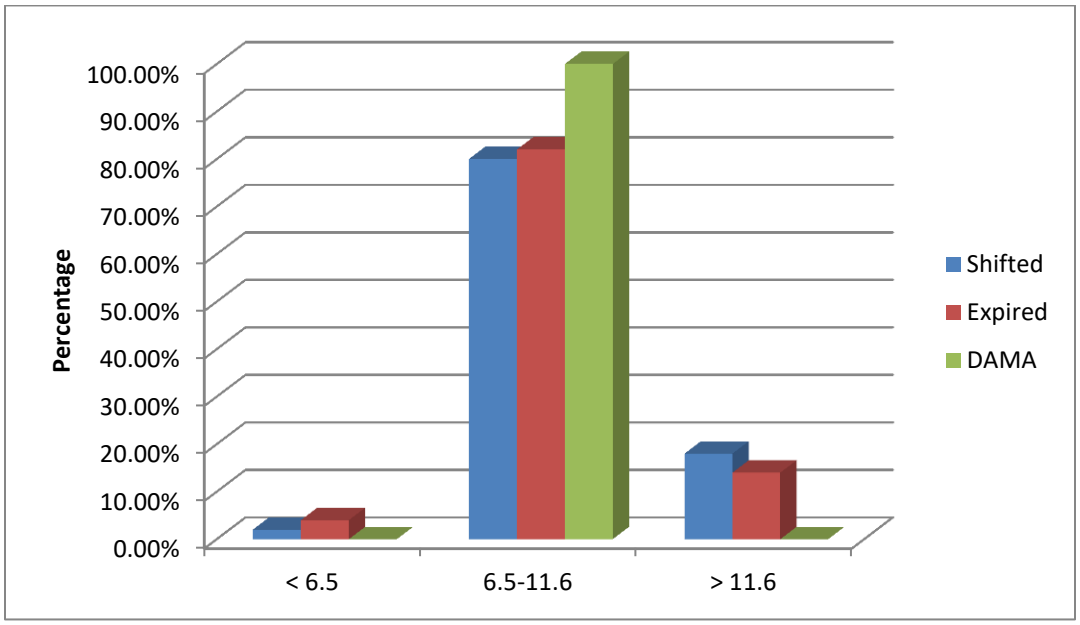


Figure 28: MPV sub group and outcome

MPV sub group on day 1, 3, 7 and outcome

Out of total 150 patients, on day 1 of Total 4 patients had MPV < 6.5, out of which 2 patients (50%) were shifted from PICU and 2 patients (50%) died. On day 1 total 121 patients out of 150 had normal range of MPV (6.5-11.6), Out of which 80 patients (66.1%) were shifted from PICU and 41 patients (33.9%) died.

On day 1 total 25 patients had high MPV (> 11.6), out of which 18 patients (72.0%) were shifted from PICU and 7 patients (28.0%) died. On day 1, relation of different groups of MPV with outcome has a p value of 0.658 which is not significant.

On day 3, Total 22 patients had low MPV (<6.5), out of which 5 patients (22.7%) were shifted from PICU and 17 patients (77.3%) died. On day 3, Total 105 patients had normal MPV (6.5-11.6), out of which 75 patients (71.4%) were shifted from PICU, 30 patients (28.6%) died. On day 3, Total 23 patients had high MPV (>11.6) < out of which 20 patients (13.0%) were shifted and 3 patients (13.0%) died .On day 3, 17 patients (77.3%) who had low MPV (<6.5) died. The relation of different groups of MPV with outcome has a p value of 0.001 which is significant.

On day 7, Total 2 patients had low MPV (<6.5), out of which 2 patients (100%) died. Total 75 patients had normal MPV (6.5-11.6), out of which 59 patients (78.7%) were shifted from PICU and 16 patients (21.3%) died. Total 21 patients had high MPV (>11.6) , out of which 19 patients (90.5%) were shifted from PICU and 2 patients (9.5%) died. 100 % patients with low MPV (<6.5)on day 7 died . The relation of different groups of MPV with outcome on day 7 has a p value 0.009 which is significant (p <0.05).

Table 29: MPV sub group on day 1, 3, 7 and outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
MPV 1	1	2	50.0%	2	50.0%	4	0.837	0.658
	2	41	33.9%	80	66.1%	121		
	3	7	28.0%	18	72.0%	25		
MPV 3	1	17	77.3%	5	22.7%	22	24.446	0.001
	2	30	28.6%	75	71.4%	105		
	3	3	13.0%	20	87.0%	23		
MPV 7	1	2	100.0%	0	0.0%	2	9.371	0.009
	2	16	21.3%	59	78.7%	75		
	3	2	9.5%	19	90.5%	21		
Total		20	20.4%	78	79.6%	98		

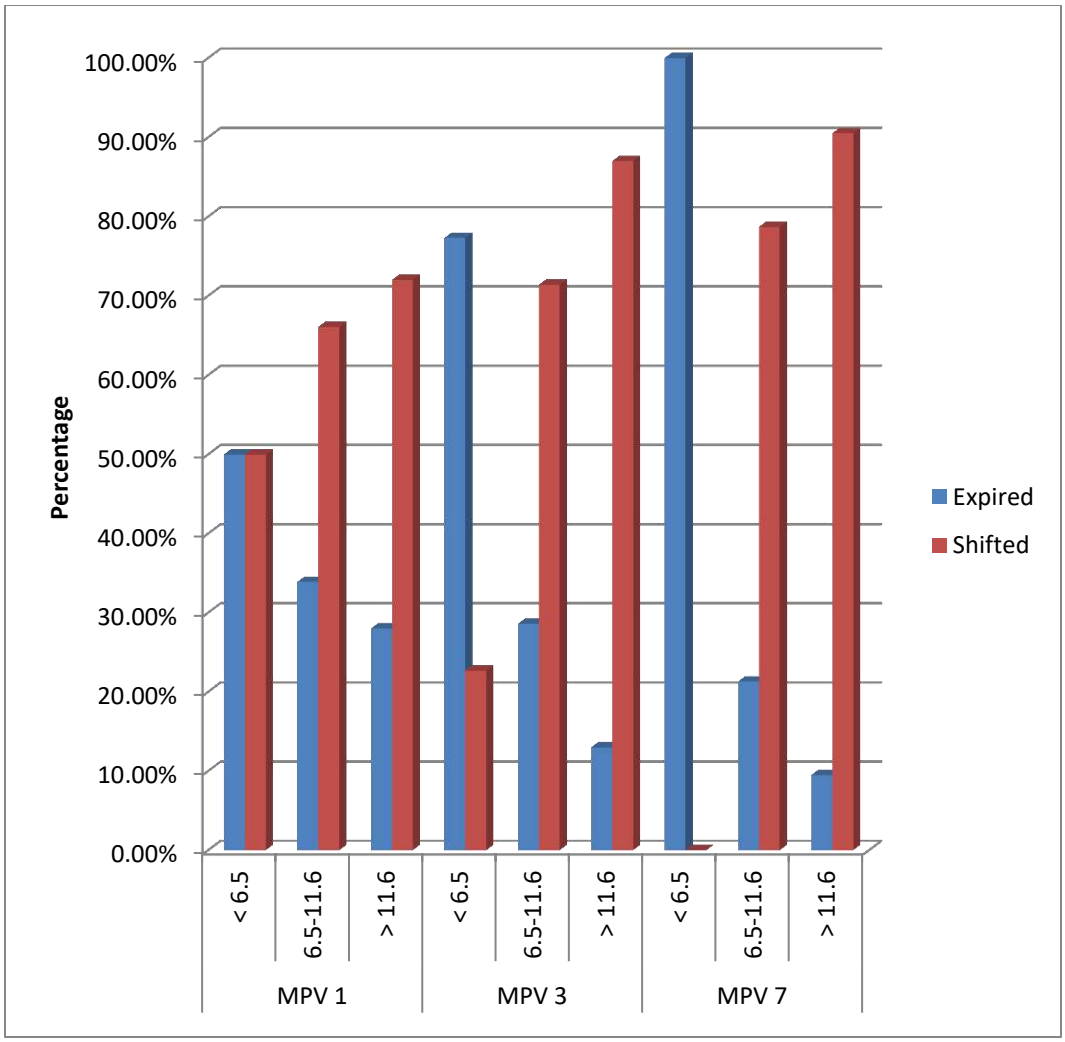


Figure 29: MPV sub group on day 1, 3, 7 and outcome.

- **PRISM AND LABORATORY PARAMETRS:**

Relation of Platelet count and PRISM

Total 150 patients in our study were divided into 2 groups with respect to PRISM, On day 1, Patients with PRISM score < 10 has mean platelet of 82.52(S.D. 54.93). Patient with PRISM > 10 has mean platelet of 78.16(S.D. 50.19). The relation of PRISM with platelet count on day 1 has a p value of 0.563 which is not significant.

On day 3, Patients with PRISM < 10 has mean platelet of 99.71(S.D. 65.76) and patients with PRISM > 10 has mean platelet of 82.80(S.D. 57.17). The relation of PRISM with platelet count on day 3 has a p value of 0.121 which is not significant.

On day 7, patients with PRISM < 10 has mean platelet of 179.09 (S.D.116.47) and patients with PRISM > 10 has mean platelet of 143.03 (S.D.130.40). The relation of PRISM with platelet count on day 7 has a p value of 0.057 which is not significant.

Table 30: Relation of Platelet and PRISM

PRISM	< 10		> 10		Z	p-value
	Mean	SD	Mean	SD		
Platelet count(D1)	82.52	54.93	78.16	50.19	-0.579	0.563
Platelet count (D3)	99.71	65.76	82.80	57.17	-1.550	0.121
Platelet count (D7)	179.09	116.47	143.03	130.40	-1.906	0.057

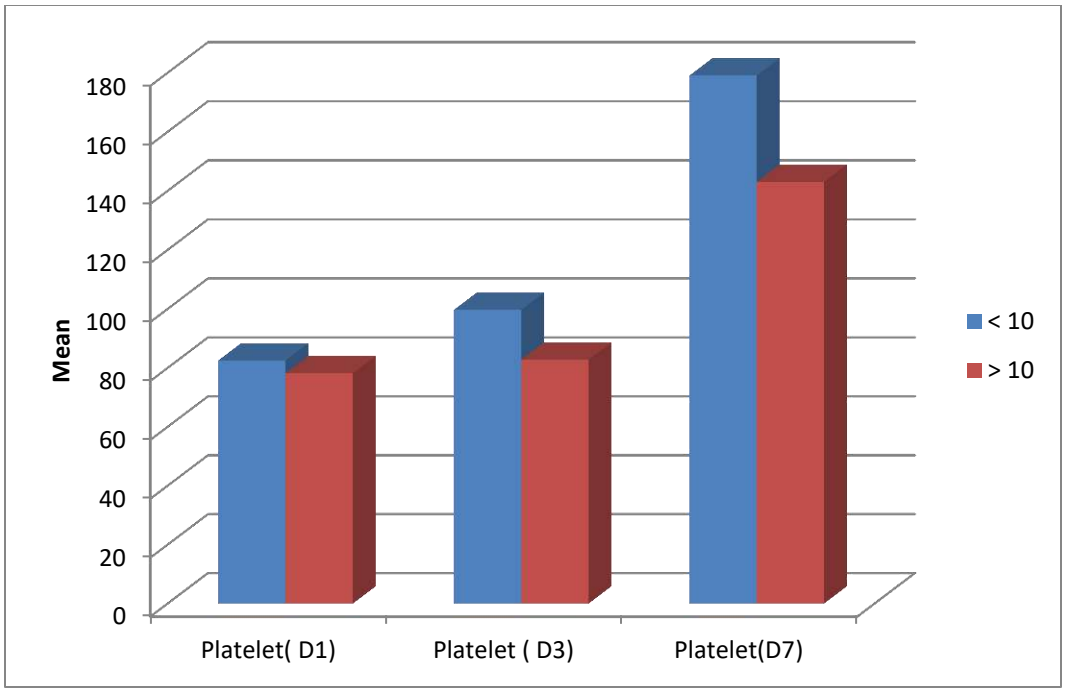


Figure 30: Relation of Platelet and PRISM

Relation of Difference in Platelets count and PRISM

In patients with PRISM score of < 10, difference in platelet count on day 1 and day 3, day 1 and day 7, day 3 and day 7 were related with PRISM score. Mean difference between day 1 and day 3 was 20.49 (S.D.41.36), Day 1 and day 7 was 102.45(S.D. 99.16) and day 3 and day 7 was 81.79 (S.D.99.06).

In patients with PRISM > 10, mean difference between day 1 and day 3 was 4.83 (S.D.57.06), day 1 and day 7 was 59.46(S.D.135.00), day 3 and day 7 was 56.12(S.D. 134.35).

In patients with PRISM < 10, there was more difference in platelet count between day 1 and day 3 as compared to patients with PRISM > 10. The relation has a p value of 0.026 which is significant.

Similarly difference between day 1 and day 7 was more in patients with PRISM < 10 as compared to patients with PRISM > 10. The p value was 0.007 which is significant.

The difference of platelet count between day 3 and day 7 in patients with PRISM < 10 was more as compared to patients with PRISM > 10. But the difference was not significant as p value came to be 0.053.

Table 31: Relation of Difference in Platelets count and PRISM

PRISM	< 10		> 10		Z	p-value
	Mean	SD	Mean	SD		
Diff Platelet count 1	20.49	41.36	4.83	57.06	-2.229	0.026
Diff Platelet count 2	102.45	99.16	59.46	135.00	-2.686	0.007
Diff Platelet count 3	81.79	99.06	56.12	134.35	-1.935	0.053

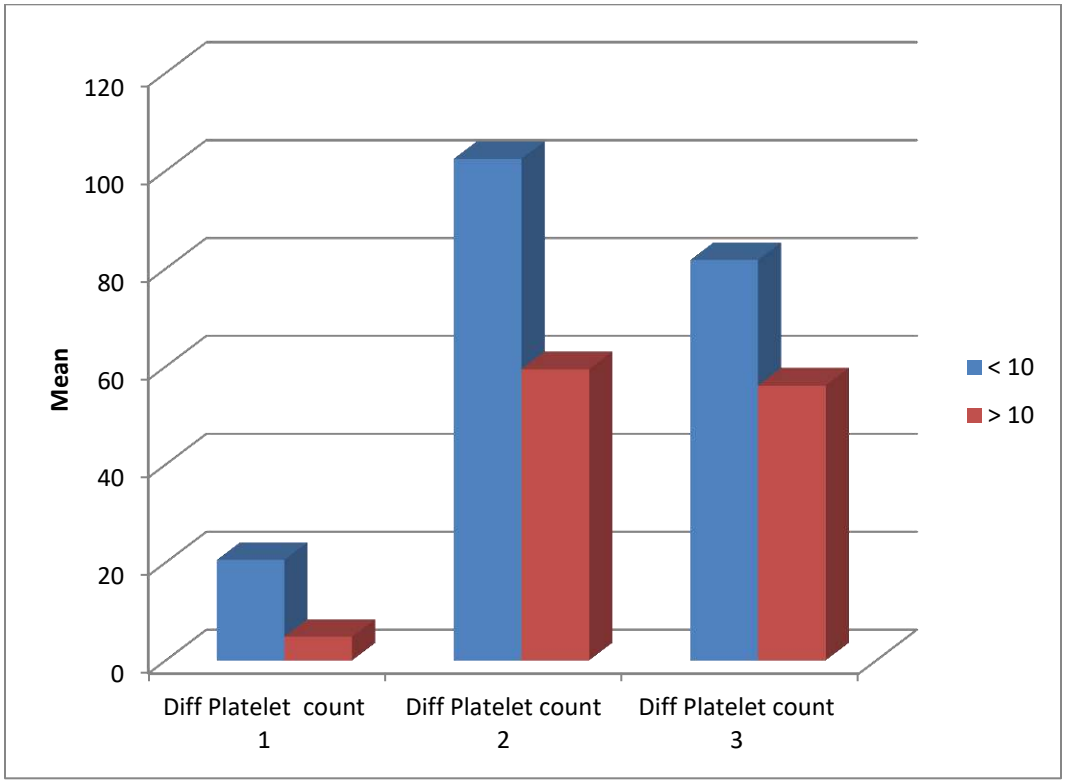


Figure 31: Relation of Difference in Platelets and PRISM

Relation of PRISM and platelet count subgroup:

We compared Severity of thrombocytopenia with PRISM score. In 48 patients with PRISM < 10, 18 patients (37.5%) had platelet count < 50000 , 8 patients (16.67%) had platelet count between 50000-100000 and 22 patients (45.8%) had platelet count more than 100000. In patients with PRISM > 10, 45 patients (41.67%) had platelet count < 50000, 21 patients (19.4%) had platelet count between 50000-100000 and 42 patients (38.9%) had platelet count > 100000. The relation of PRISM and severity of subgroup had no significant relation (p value 0.715).

Table 32: Relation of PRISM and platelet count subgroup

Platelet count		< 50000		50000-100000		> 100000		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age	No. of cases	%age			
PRISM	< 10	18	37.5%	8	16.67%	22	45.8%	48	0.671	0.715
	> 10	45	41.67%	21	19.4%	42	38.9%	108		

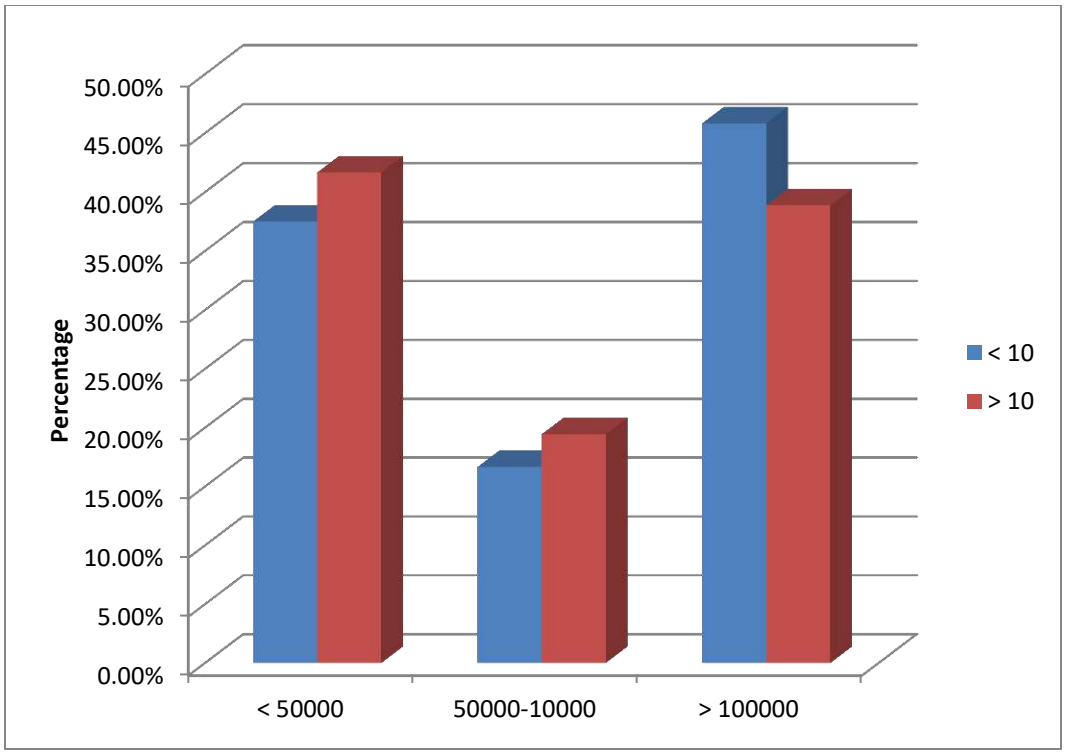


Figure 32: Relation of PRISM and platelet count subgroup

Relation of MPV and PRISM:

Total 150 patients in our study were divided into 2 groups with respect to PRISM,On day 1 , Patients with PRISM score < 10 has mean MPV of 10.13(S.D. 1.58) . Patient with PRISM > 10 has mean platelet of 9.97(S.D. 1.59). The relation of PRISM with MPV on day 1 has a p value of 0.0.596 which is not significant. On day 3 , Patients with PRISM < 10 has mean MPV of 10.54(S.D.1.60) and patients with PRISM > 10 has mean platelet of 10.45(S.D. 1.52) . The relation of PRISM with platelet count on day 3 has a p value of 0.835 which is not significant.

On day 7 , patients with PRISM < 10 has mean MPV of 10.51 (S.D.1.50) and patients with PRISM > 10 has mean platelet of 10.42(S.D.1.73) . The relation of PRISM with platelet count on day 7 has a p value of 0.745 which is not significant.

Table 33: Relation of MPV and PRISM

PRISM	< 10		> 10		Z	p-value
	Mean	SD	Mean	SD		
MPV (D1)	10.13	1.58	9.97	1.59	-0.530	0.596
MPV(D3)	10.54	1.60	10.45	1.52	-0.208	0.835
MPV (D7)	10.51	1.50	10.42	1.73	-0.326	0.745

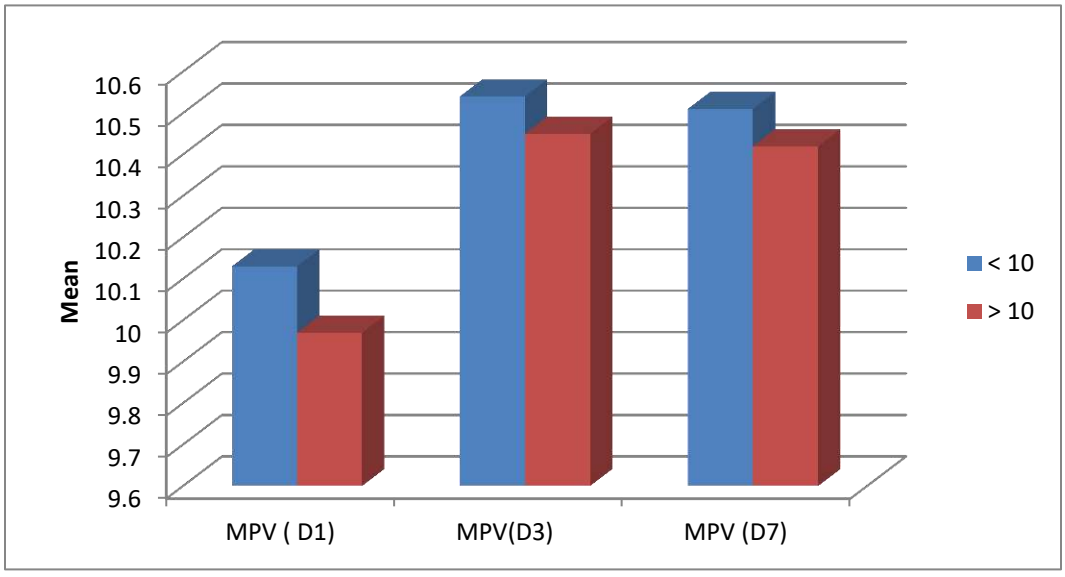


Figure 33: Relation of MPV and PRISM

Relation of difference in MPV and PRISM:

In our study, patients with PRISM < 10, difference in MPV on day 1 and day 3, day 1 and day 7, day 3 and day 7 were related with PRISM score. Mean difference between day 1 and day 3 was 0.49 (S.D.59), Day 1 and day 7 was 0.38(S.D. 1.65) and day 3 and day 7 was -0.12 (S.D.2.02). The relation between difference in MPV and PRISM on day 1 and day 3 has a p value of 0.394 which is not significant (P>0.05), The p value of the relation between PRISM and MPV difference of day 1 and day 7 was 0.363 which is not significant .The p value for difference of MPV day 3 and day 7 and PRISM was 0.861 which is not significant.

Table 34: Relation of difference in MPV and PRISM

PRISM	< 10		> 10		Z	p-value
	Mean	SD	Mean	SD		
Diff MPV(D3)	0.49	1.59	0.65	1.59	-0.852	0.394
Diff MPV (D7)	0.38	1.65	0.68	1.83	-0.909	0.363
Diff MPV (D3-D7)	-0.12	2.02	0.04	1.66	-0.175	0.861

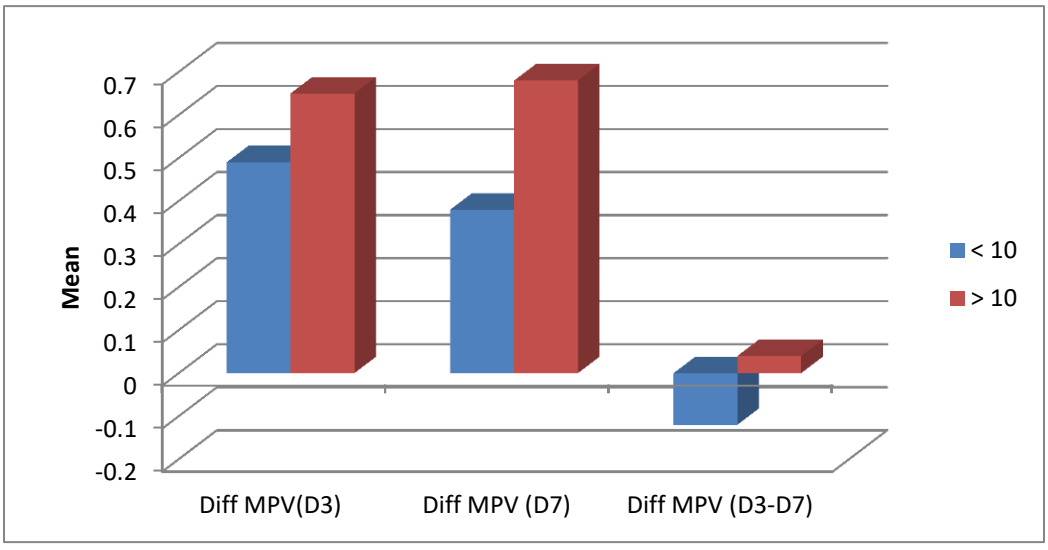


Figure 34: Relation of difference in MPV and PRISM

Relation of MPV/ Platelet ratio and PRISM

The relationship of MPV/ platelet ratio with PRISM was done .In patient with PRISM score of < 10 has mean MPV / PLT ratio on day 1 was 0.27(S.D.0.33), On day 3 the ratio was 0.17(S.D.0.15) , on day 7 the ratio was 0.11(S.D.0.12).

In patients with PRISM score of > 10, the mean ratio on day 1 was 0.25(S.D.0.26), on day 3 the ratio was 0.21(S.D.0.26), on day 7 the ratio was 0.14(S.D. 0.15).

The relation of PRISM score an MPV ratio has p value of more than 0.05 which is not significant.

Table 35: Relation of MPV/ Platelet count ratio and PRISM

PRISM	< 10		> 10		Z	p-value
	Mean	SD	Mean	SD		
MPV/PLT 1	0.27	0.33	0.25	0.26	-0.271	0.787
MPV/PLT 3	0.17	0.15	0.21	0.18	-1.435	0.151
MPV/PLT 7	0.11	0.12	0.14	0.15	-1.738	0.082

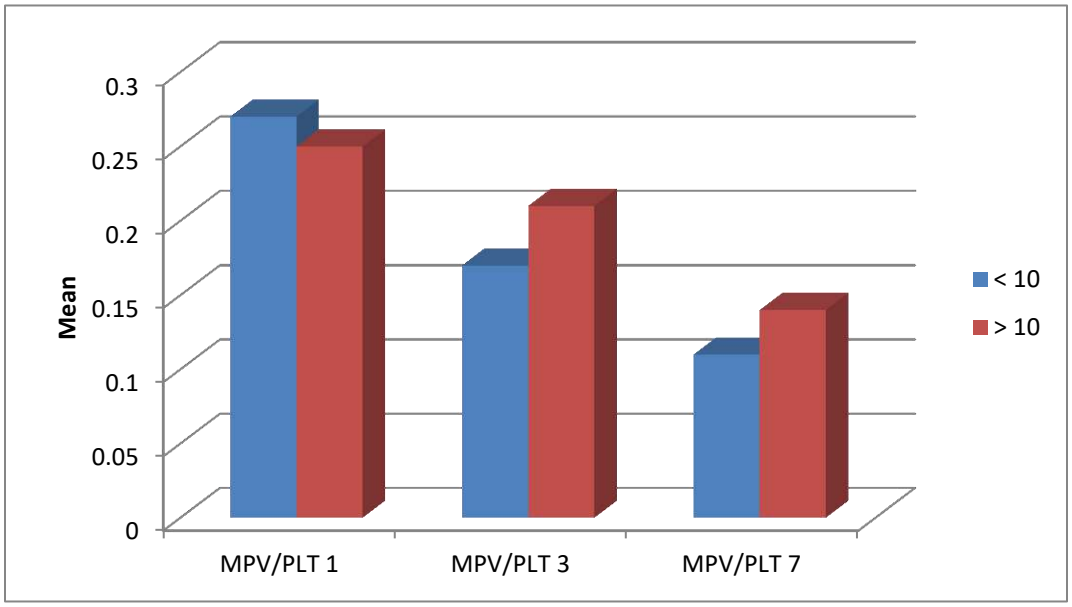


Figure 35: Relation of MPV/ Platelet count ratio and PRISM

- **RELATION OF DENGUE PATIENTS AND LABORATORY PARAMETERS:**

Relation of Hb and RDW in dengue patients

In our study there were total 50 dengue patients. Different laboratory parameters were assessed between patients with dengue and without dengue. Mean Hb values were higher in dengue patients as compared to patients without dengue.

In dengue patients , mean Hb on day 1 was 11.86 (S.D. 3.49) , On day 3 was 10.72(S.D. 2.48) and on day 7 was 10.29 (S.D.1.32) , whereas in patients without dengue , mean Hb on day 1 was 9.07 (S.D. 2.11) , On day 3 was 9.62(S.D. 6.31) and on day 7 was 8.85(S.D. 1.58) . The difference in Hb in both groups on day 1 has a p value of 0.001 which is significant, on day 3 the p value was 0.261 which is not significant and on day 7, the p value was 0.001 which is significant.

In dengue patients , on day 1 mean RDW was 16.15 (S.D. 2.45) , on day 3 was 16.57(S.D. 2.83) , on day 7 was 16.40(S.D 2.08) whereas in patients without dengue , Mean RDW on day 1 was 18.46 (S.D.4.43) , on day 3 was 19.33(S.D. 5.84) and day 7 was 19.78(S.D. 6.65) .There was a significant difference of RDW between both the groups and p value came to be 0.001,0.003,0.011 which is significant.

Table 36: Relation of Hb and RDW in dengue patients

Dengue	N		Y		Z	p-value
	Mean	SD	Mean	SD		
Hb(D 1)	9.07	2.11	11.86	3.49	-6.172	0.001
Hb(D 3)	9.62	6.31	10.72	2.48	-1.129	0.261
Hb(D 7)	8.85	1.58	10.29	1.32	-4.207	0.001
RDW (D1)	18.46	4.43	16.15	2.45	3.445	0.001
RDW(D3)	19.33	5.84	16.57	2.83	2.998	0.003
RDW(D7)	19.78	6.65	16.40	2.08	2.587	0.011

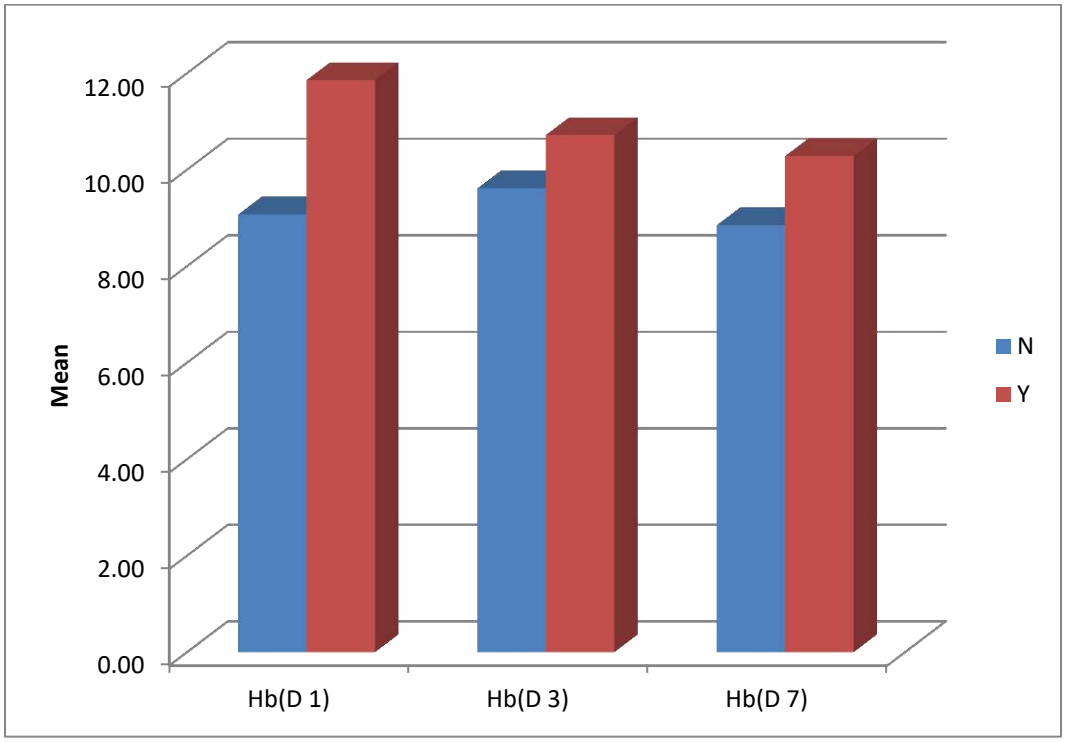


Figure 36: Relation of Hb in dengue patients

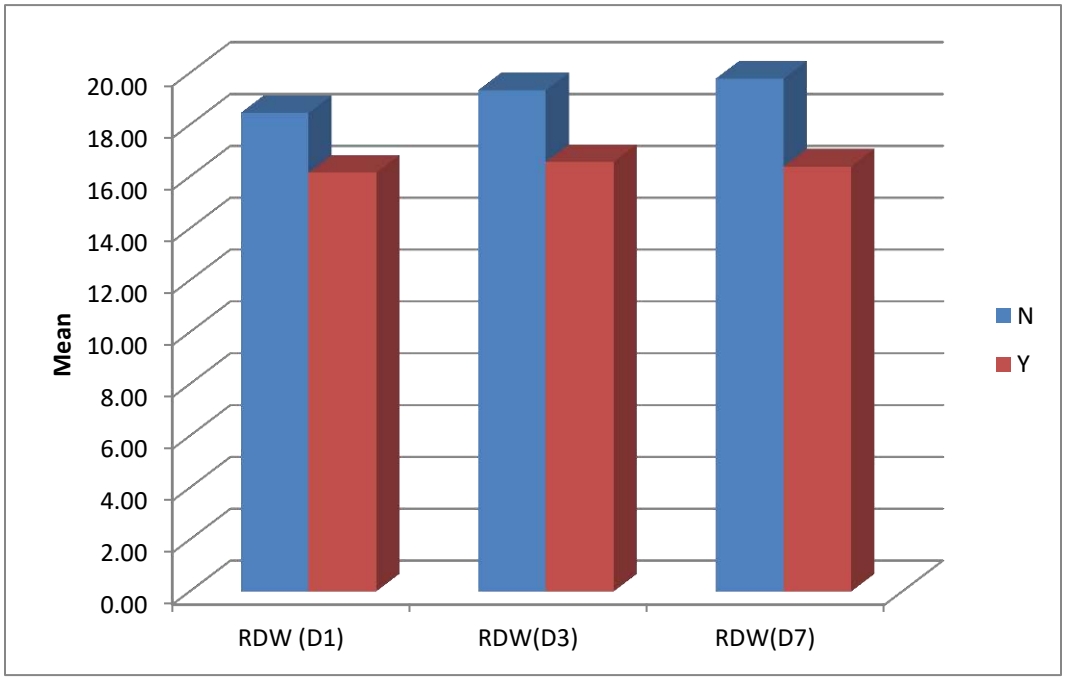


Figure 37: Relation of RDW In Dengue Patients

Relation of Platelet count in dengue patients

In dengue patients , mean Platelet count on day 1 was 42.96 (S.D. 38.72) , On day 3 was 70.44(S.D. 45.71) and on day 7 was 119.07(S.D 89.69) , whereas in patients without dengue , mean platelet on day 1 was 96.74 (S.D. 47.84) , On day 3 was 97.43(S.D. 65.00) and on day 7 was 167.52(S.D. 135.75) . The difference in platelet count in both groups on day 1 has a p value of 0.001 which is significant , on day 3 the p value was 0.014 which is significant and on day 7 , the p value was 0.088 which is not significant .

Table 37: Relation of Platelet count in dengue patients.

Dengue	N		Y		Z	p-value
	Mean	SD	Mean	SD		
Platelet count(D1)	96.74	47.84	42.96	38.72	6.944	0.001
Platelet count (D3)	97.43	65.00	70.44	45.71	2.492	0.014
Platelet count (D7)	167.52	135.75	119.07	89.69	1.721	0.088

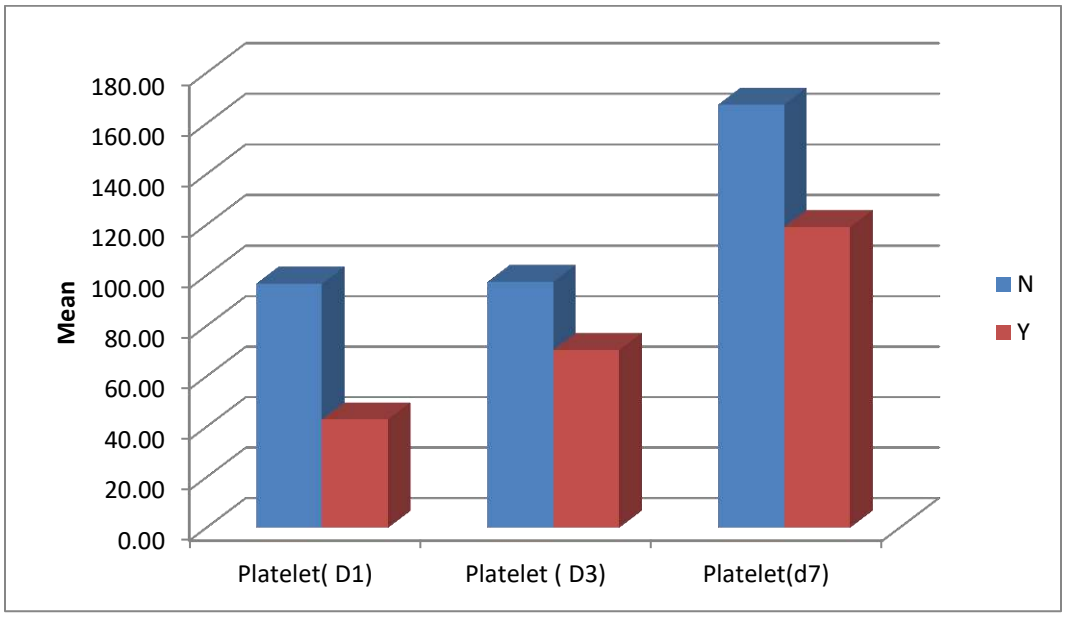


Figure 38: Relation of Platelet count in dengue patients

Relation of Platelet count subgroup and Dengue patients :

In our study, severity of thrombocytopenia was compared in dengue patients. In patients with dengue , 37 patients (74%) had platelet count < 50,000, 7 patients (14%) had platelet count between 50,000-1,00,000 and 6 patients (12%) had platelet count >10,0000. In patients without dengue , 26 patients (24.5%) had platelet count < 50,000, 22 patients (20.75%) had platelet count between 50,000-1,00,000 and 58 patients (54.7%) had platelet count > 1,00,000.There is a significant difference in platelet count in patients with dengue fever and without dengue fever .

Table 38: Relation of Platelet count subgroup and Dengue patients

		< 50000		50000-100000		> 100000		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age	No. of cases	%age			
DENGUE	N	26	24.5%	22	20.75%	58	54.7%	106	36.535	0.001
	Y	37	74%	7	14%	6	12%	50		

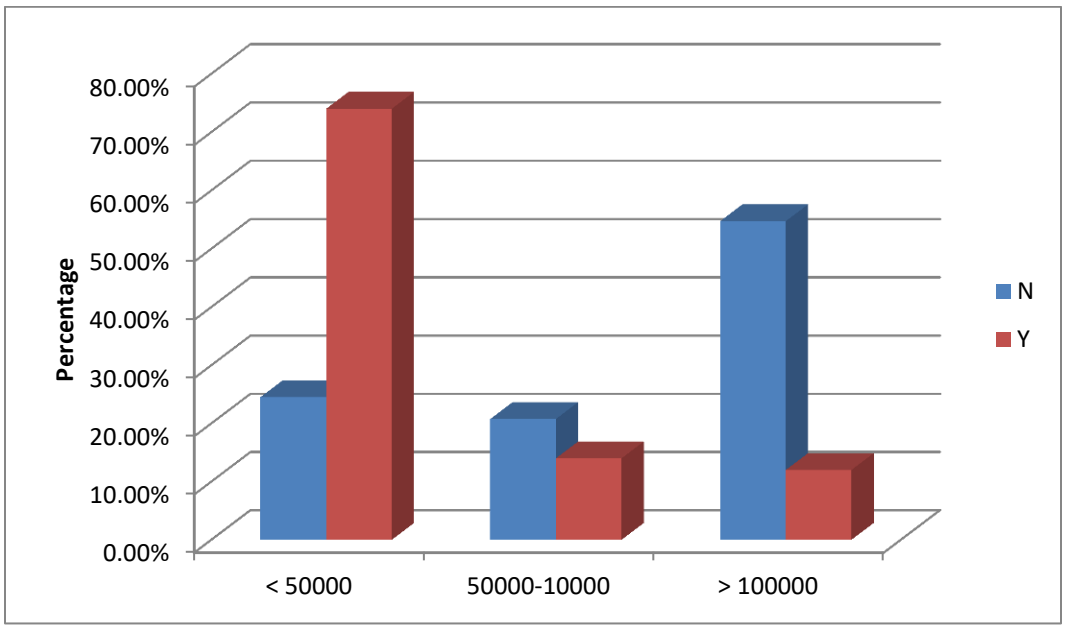


Figure 39: Relation of Platelet count subgroup and Dengue patients

Relation of MPV in dengue patients

In dengue patients , mean MPV on day 1 was 9.89 (S.D.1.44) , on day 3 was 10.54(S.D. 1.41) , on day 7 was 10.54 (S.D. 1.02) whereas in patients without dengue , mean MPV on day 1 was 10.08 (S.D. 1.65) , on day 3 was 10.45(S.D. 1.61) , on day 7 was 10.42(S.D. 1.83) . The difference in MPV in both the groups has a p value of 0.479, 0.769, 0.741 which is not significant.

Table 39: Relation of MPV in dengue patients.

Dengue	N		Y		Z	p-value
	Mean	SD	Mean	SD		
MPV (D1)	10.08	1.65	9.89	1.44	0.710	0.479
MPV(D3)	10.45	1.61	10.54	1.41	-0.295	0.769
MPV (D7)	10.42	1.83	10.54	1.02	-0.331	0.741

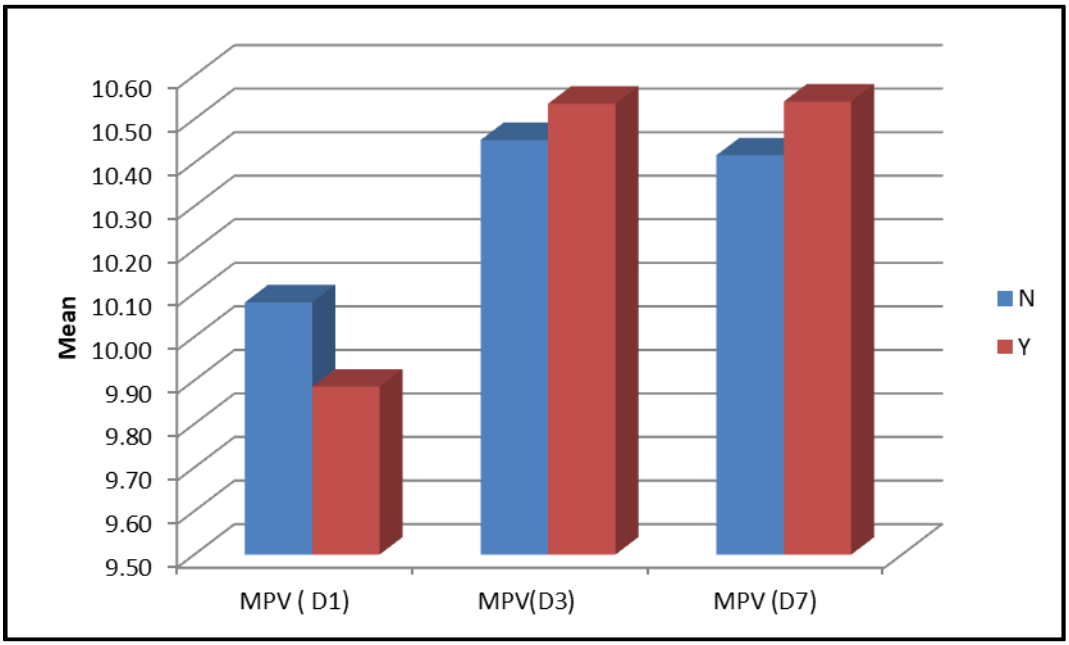


Figure 40: Relation of MPV in dengue patients

Relation of MPV / Platelet count ratio in dengue patients

In Dengue patients , Mean MPV / PLT ratio on day 1 was 0.39 (S.D. 0.26) , on day 3 was 0.22(S.D. 0.12) , on day 7 was 0.15(S.D. 0.15) whereas in patients without dengue , mean MPV / PLT on day 1 was 0.19 (S.D. 0.27) , on day 3 was 0.19(S.D. 0.19) , on day 7 was 0.12(S.D. 0.14) . The difference in MPV / PLT ratio on day 1 has a p value of 0.001 which is significant , on day 3 was 0.418 which is not significant and on day 7 was 0.342 which is not significant.

Table 40: Relation of MPV / Platelet count ratio in dengue patients

Dengue	N		Y		Z	p-value
	Mean	SD	Mean	SD		
MPV/PLT 1	0.19	0.27	0.39	0.26	-4.313	0.001
MPV/PLT 3	0.19	0.19	0.22	0.12	-0.812	0.418
MPV/PLT 7	0.12	0.14	0.15	0.15	-0.954	0.342

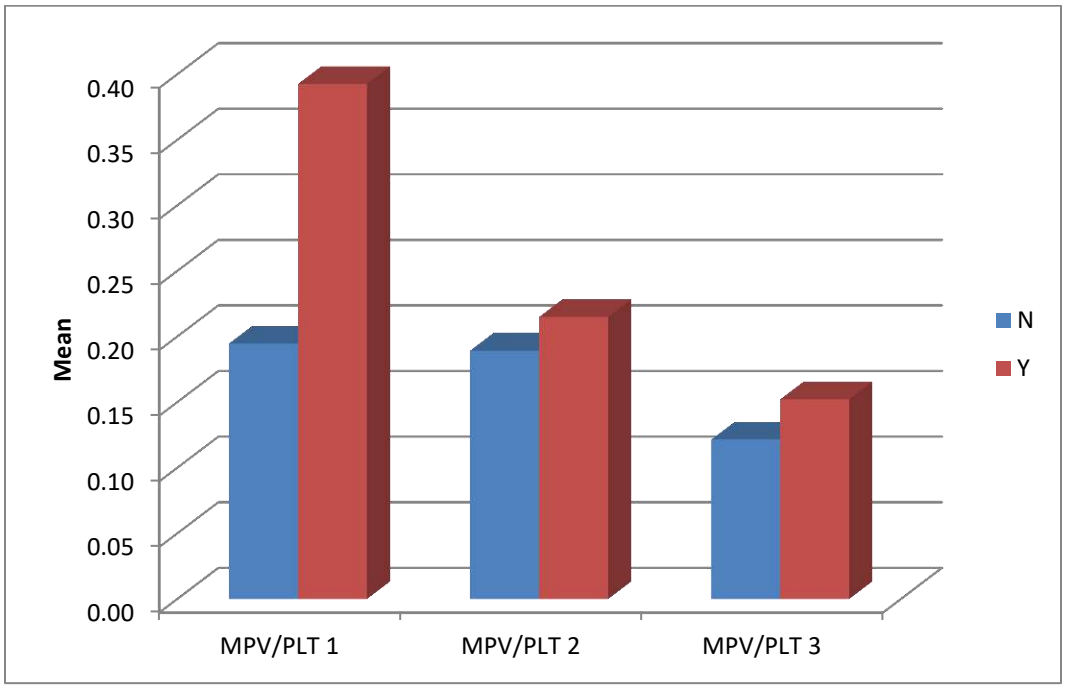


Figure 41: Relation of MPV / Platelet count ratio in dengue patients

- **MORBIDITY AND OUTCOME :**

Ventilation requirement and outcome

Out of total 150 study population, 88 patients required some mode of ventilation at admission. Out of these 88 patients, 40 patients (45.5%) were shifted , 48 patients (54.5%) died. 62 patients did not require any mode of ventilation . out of these 62 patients , 60 patients (96.8%) were shifted , 2 patients (3.2%) died. The relation of need of ventilation at admission and the outcome had a p-value of 0.001 which is significant.

Table 41: Ventilation requirement and outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
Ventilation	No	2	3.2%	60	96.8%	62	7.102 4.109	0.007 0.001
	Yes	48	54.5%	40	45.5%	88		

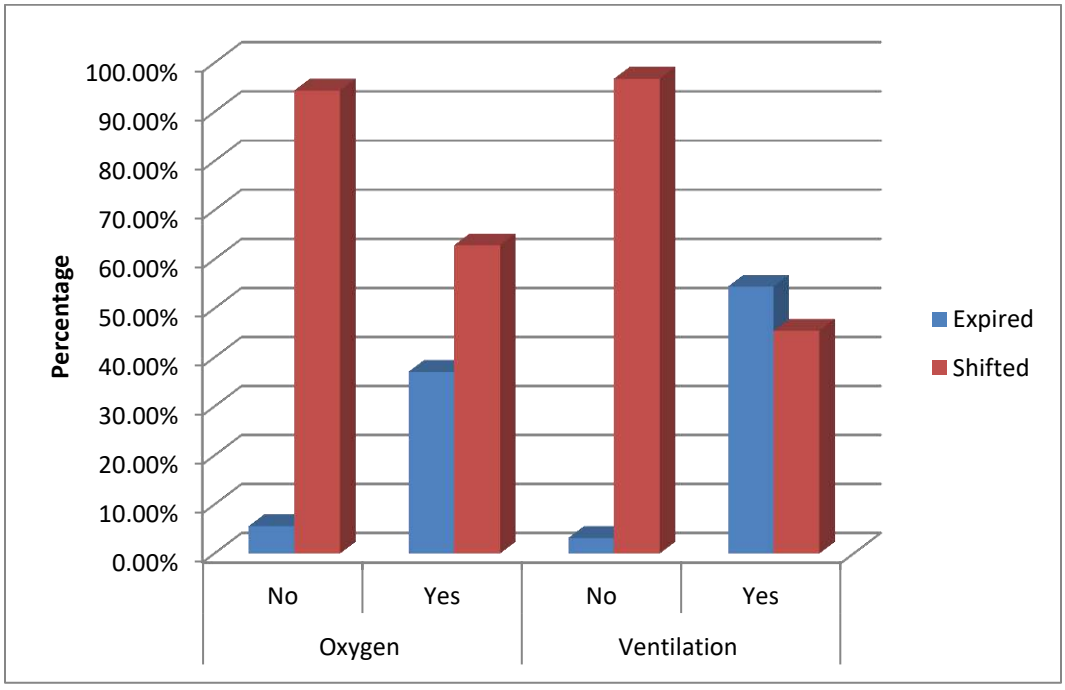


Figure 42: Ventilation requirement and outcome

Relation of MPV and need for ventilation:

We compared the need for ventilation with the change in MPV in our patients. The mean MPV in patients requiring ventilation was 9.96 (S.D.1.62) on day 1, 10.40(S.D.1.50) on day 3 and 10.52 (S.D.1.70) on day 7.

The mean MPV in patients who did not received mechanical ventilation was 10.10(S.D.1.53) on day 1, 10.58 (S.D.1.60) on day 3, 10.37(S.D.1.61) on day 7. There was no statistically significant difference in MPV and their relation with ventilation.

Table 42: Relation of MPV and need for ventilation

Ventilation	No		Yes		Z	p-value
	Mean	SD	Mean	SD		
MPV (D1)	10.10	1.53	9.96	1.62	0.543	0.588
MPV(D3)	10.58	1.60	10.40	1.50	0.639	0.524
MPV (D7)	10.37	1.61	10.52	1.70	-0.444	0.658

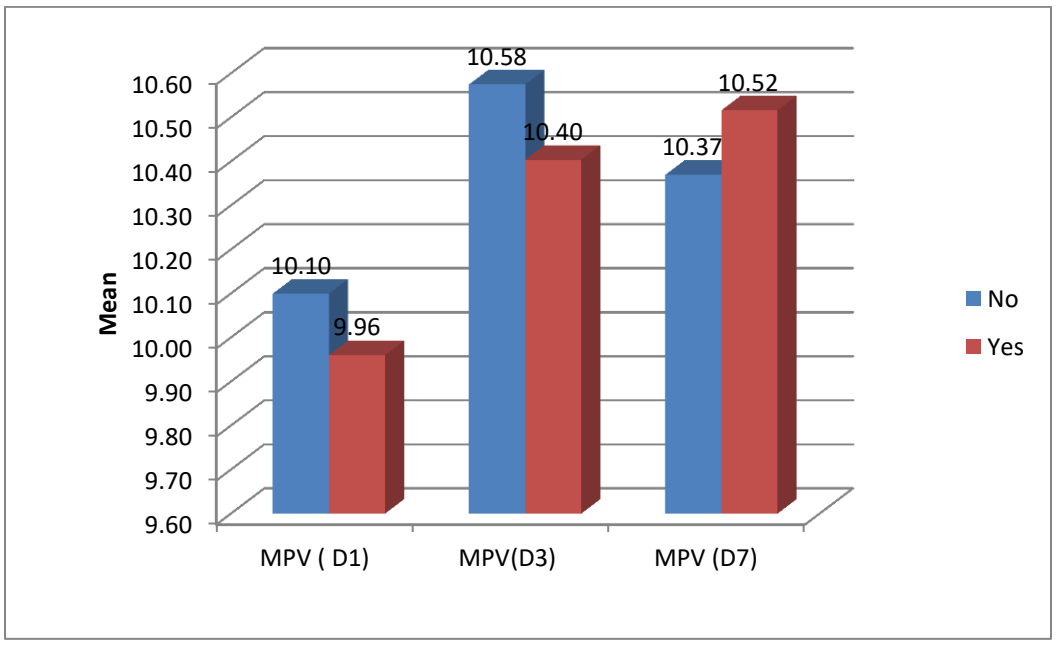


Figure 43: Relation of MPV and need for ventilation

Inotrope requirement and outcome

Out of total 150 patients, 81 patients required inotropic support. Out of these 81 patients , 37 patients (45.7%) were shifted , 44 patients (54.3%) died . 69 patients did not require any inotropic support, out of which 63 patients (91.3%) were shifted , 6 patients (8.7%) died . The relation of need of Inotrope requirement at admission and the outcome had a p-value of 0.001 which is significant.

Table 43: Inotrope requirement and outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
Inotropes	No	6	8.7%	63	91.3%	69	34.903	0.001
	Yes	44	54.3%	37	45.7%	81		
Total		50	33.3%	100	66.7%	150		

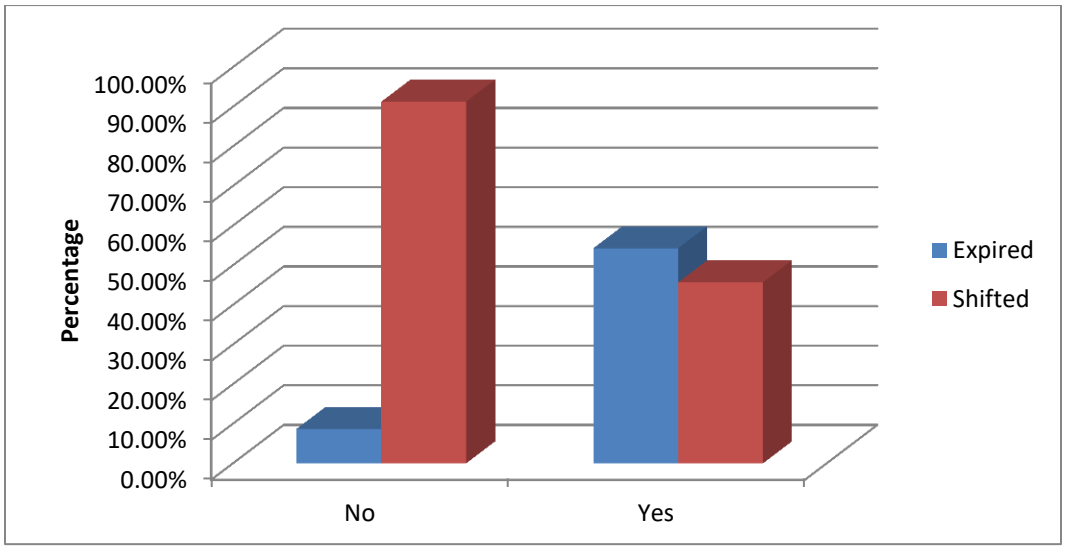


Figure 44: Inotrope requirement and outcome

Relation of MPV and need for inotropes:

The relation of change in MPV was compared with the need of inotropic support in our patients. The mean MPV in patients who required inotropes was 9.96(S.D.1.62) on day 1, 10.44(S.D.1.60) on day 3 and 10.49(S.D.1.71) on day 7. In patients who did not require inotropic support, mean MPV on day 1 was 10.09(S.D.1.55) , On day 3 mean MPV was 10.52(S.D.1.49) and on day 7 mean MPV was 10.40 (S.D.1.60) . There was no significant difference in the MPV value and need for inotropes.

Table 44: Relation of MPV and need for inotropes

Inotropes	No		Yes		Z	p-value
	Mean	SD	Mean	SD		
MPV (D1)	10.09	1.55	9.96	1.62	0.534	0.594
MPV(D3)	10.52	1.49	10.44	1.60	0.312	0.756
MPV (D7)	10.40	1.60	10.49	1.71	-0.274	0.784

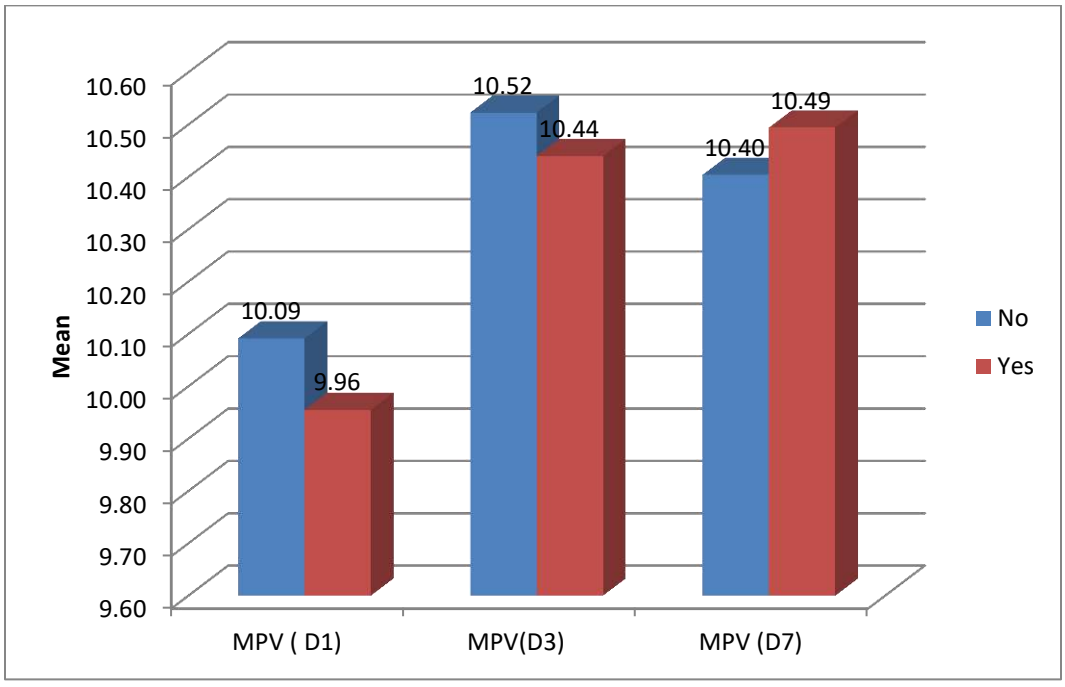


Figure 45: Relation of MPV and need for inotropes

Duration of stay and outcome

Out of total 150 patients of study population , 18 patients had a PICU stay of < 3 days out of which , 2 patients(11.1%) were shifted , 16 patients (88.9%) died . 96 patients had a PICU stay of 3-7 days ,out of which 73 patients (76%) were shifted , 23 patients (24%) died . 20 patients had a PICU stay of 7-14 days , out of which 15 patients (75.0%) were shifted , 5 patients (25.0%) died . 16 patients had a PICU stay of > 14 days ,out of which 10 patients (62.5%) were shifted , 6 patients (37.5%) died . The relation of Duration of stay and the outcome had a p-value of 0.001 which is significant.

Table 45: Duration of stay and outcome

		Outcome				Total	Chi-square value	p-value
		Expired		Shifted				
Duration Of Stay	1(< 3 days)	16	88.9%	2	11.1%	18	29.547	0.001
	2(3-7 days)	23	24.0%	73	76.0%	96		
	3(7-14days)	5	25.0%	15	75.0%	20		
	4(>14 days)	6	37.5%	10	62.5%	16		
Total		50	33.3%	100	66.7%	150		

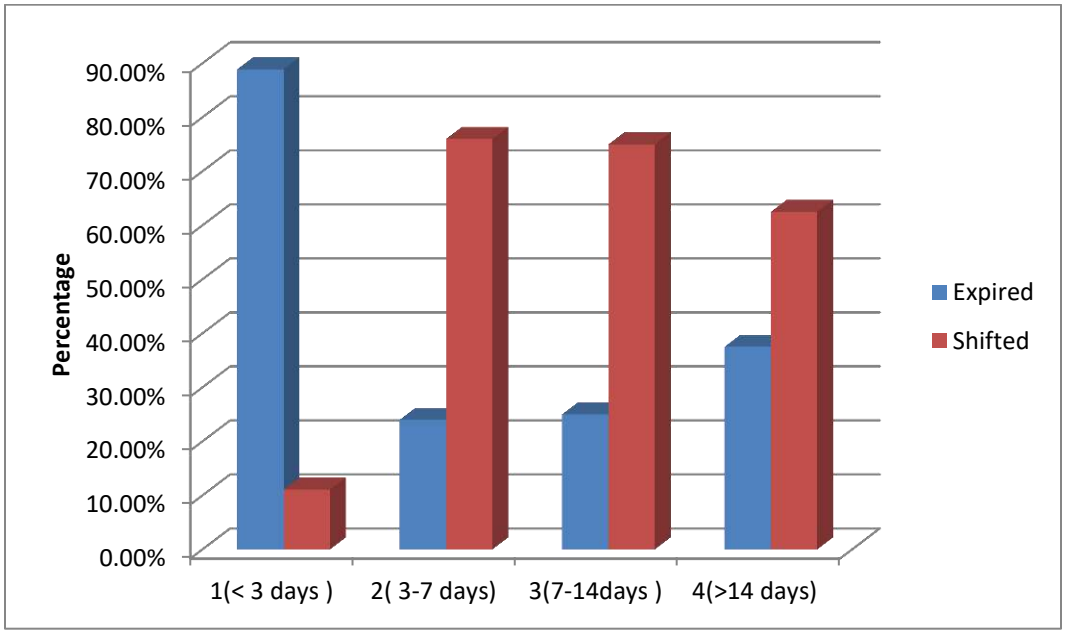


Figure 46: Duration of stay and outcome

Relation of MPV and duration of stay:

The relation between MPV and duration of stay was assessed in our study. The values of MPV with respect to duration of stay are shown in the following table. It was seen that patients with relatively lesser stay had relatively high MPV as compared to patients with longer duration of stay. But the difference had no statistically significant p value.

Table 46: Relation of MPV and duration of stay

Hospital stay	< 3 DAYS		3-7 DAYS		7-14 DAYS		> 14 DYAS		F	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
MPV (D1)	10.51	1.69	10.13	1.49	9.47	1.67	9.56	1.71	2.196	0.091
MPV (D3)	11.32	1.55	10.63	1.55	10.09	1.70	9.97	1.18	1.952	0.124
MPV (D7)			10.49	1.42	9.84	1.59	10.99	2.21	2.549	0.083

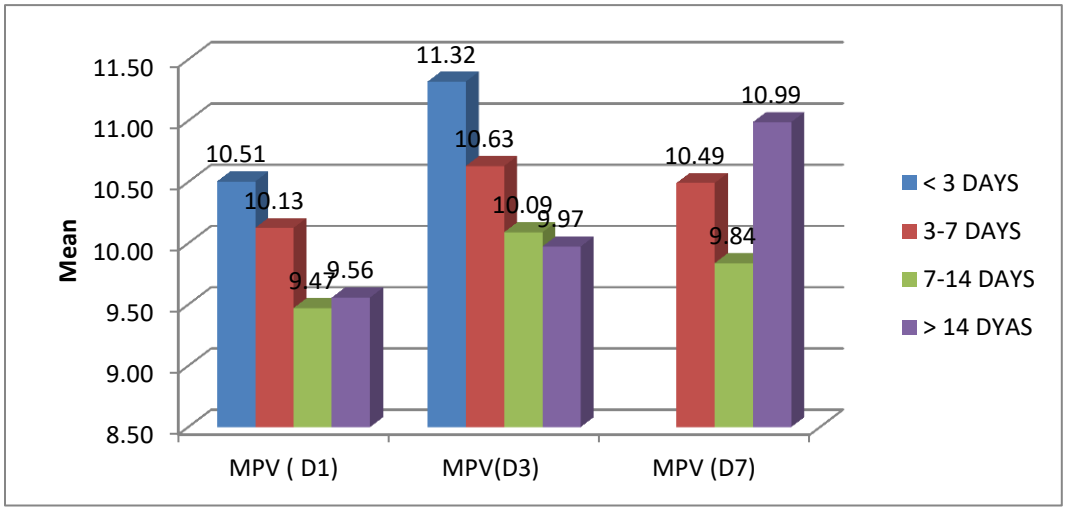


Figure 47: Relation of MPV and duration of stay

DISCUSSION

Blood platelets are non-nucleated and discoidal fragments of megakaryocytes which are formed during thrombocytopoiesis.This process is stimulated by a hematopoietic cytokine – Thrombopoietin(TpO) which play a major role in proliferation and differentiation of megakaryocytes .The cell proliferation and intracellular synthesis of platelet proteins occur due to activation of c-MPL receptor for TpO present on the surface of megakaryocyte [49].With repeated endomitosis ,there occurs increased cell metabolism , formation of cell organelles and specific granules which are necessary for normal platelet formation [50].In various studies it was noted that platelets are increased in inflammatory conditions . This is mainly due to increased production of inflammatory markers like IL-6, IL-1 and TNF –A which stimulates the precursor cells of platletets.IL-6 leads to increased TpO generation in liver and also has direct effect through IL-6R receptor present on the membrane of megakaryocyte [51]. During inflammation, platelet –leukocyte aggregates are formed which occurs due to the adhesion proteins present on the cell surface of activated platelets [52].

During routine blood morphology test, basic platelet parameters are being assessed, these include- Blood platelet count (PLT), Mean Platelet Volume (MPV), Platelet distribution width (PDW), and Plateletcrit (PCT) .The Mean platelet volume (MPV) is the measure of the platelet size and is calculated by hematological analysers on the basis of the volume distribution. Large platelets have MPV > 15 fl, whereas giant platelets have MPV > 20 fl [53] under normal physiological conditions, MPV is inversely proportional to platelet count. But under various pathological conditions this relation is disturbed.In normal cases, increased platelet count due to any cause leads to inhibition of TpO synthesis by liver and thus maintains a constant platelet mass. However, in patients with underlying inflammation, due to release of inflammatory cytokines ,there

occurs enhanced release of platelets.This is associated with increased number of larger platelets [54, 55, 56].

In critically ill patients, it was noted that increased MPV in first 72 hours of hospital admission with marked rise in MPV is associated with poor prognosis [11]. It was seen that MPV trend and platelet count during course of patients with sepsis and it was noted that average MPV gradually increased in patients with poor outcome. It is seen that patients with low platelet count with high MPV and Platelet distribution width had higher mortality rates than those with normal platelet indices.Therefore, platelet indices can be prognostic marker in critically ill patients.

MPV is a routine test performed in hospital during blood morphology and can provide important information on the course of the disease and effect of the treatment given. As there is paucity of literature on the use of MPV in children ,so this prospective observational study was conducted over a period of 1 year to assess the role of MPV as a prognostic marker in the outcome of critically ill children admitted to Paediatric ICU .

DEMOGRAPHICS AND CLINICAL PROFILE

- **DEMOGRAPHICS AND OUTCOME:**

Age Group and outcome:

We included patients from age group of 1 month to 18 years with thrombocytopenia at admission .The mean age of presentation in our study was 93.11 months (S.D.59.87) or 7.8 Years (Range: 1 month to 18 years) at admission. Majority of the patients were in the age group of > 10 years and these patients had relatively good outcome as compared to patients between 1 month to 1 year who had poor outcome. The relationship of mean age and outcome had a significant p value.

Elmoneim AA et al. conducted a prospective observational study to assess the role of MPV in critically ill children. A total of 45 patients were enrolled in this study .The mean age of the study population was 8 months (3.5-29.5 months). Patients were divided into two groups, MPV rise and MPV no rise group. Comparison of rise in MPV was done with different

variables and there was no significant difference between the two groups [57].

A retrospective review done by Bunyamin Uyanik et al.in acute appendicitis patients to assess the role of MPV. In this study patients were divided into cases and controls each having total number of 305 cases, In which mean age was 9.5 ± 2.9 years and 9.6 ± 3.1 years in each group [28].

Sheng Ye et al. Did a retrospective cohort study done in children aged < 16 years to assess the relation of platelet volume indices and mortality in children on mechanical ventilation. The mean age of children in this study was 10.6 ± 9.55 months [24].

Rana isguder et al. did a study in 2016 to assess the role of MPV in children with sepsis. Patients were divided into 2 groups, survivor and non survivors. The mean age in survivor group was 50 months and mean age in non survivors was 56 months. There was no significant age difference in survivor and non-survivor group in contrast to our study [1].

The discrepancy in our study and other studies could be different mean age group.

Gender and outcome:

Male to female ratio in our study was 2.1: 1 and there was a significant relation of gender and outcome as female patients had poor outcome. Male predominance in our study could be explained by the fact that there is inherent gender bias for males in developing countries.

Rana isguder et al. did a study to assess the role of MPV in children with sepsis, in which total females were 102 and males were 86. Male to female ratio in this study was 0.84:1 .In contrast to our study there was no significant relation between gender and outcome in this study [1].

Choi SJ et al did a study to assess role of platelet indices as predictive markers of prognosis in paediatric septic shock patients. In this study, total male patients were 52 and total female patients were 31, Male to female

ratio was 1.7:1.This study had no significant relation between gender and outcome [10].

Kim CH et al. did a study in 345 patients who presented with sepsis. Male to female ratio in this study was 0.48:1 and similar to our study there was a significant relation of gender and outcome with poor outcome in female patients [11].

Primary System involvement and outcome:

We divided the patients according the primary system involved. Majority of the patients presented with infection (43.6%) and dengue was most common among these infections. Patients with primary respiratory disorder had worst outcome followed by patients with GIT disorder as primary disorder but there was no significant relation between primary system involved and the outcome.

Rana İşgüder et al., in their study did not divide patients into primary system involvement instead they had divided patients by the comorbidities they had at time of admission like epilepsy, congenital cardiomyopathy, cerebral palsy and genetic syndromes. The relation of comorbidities and outcome was made and it was found that only genetic syndromes had a significant relation with the poor outcome Otherwise patients without any comorbidity had good outcome [1].

Choi SJ et al. did a study in 2015 in Korea, out of total 83 patients, 38 (48.7%) were hemat-oncological patients, which was our exclusion criteria [10]. Out of these 83 patients, 13 (16.7%) patients had CNS involvement, 8 (10.3%) had primary cardiac abnormality at admission, 6 (7.7%) patients had respiratory system as primary abnormality.

In a study done by Mohammed Zolaly et al. to assess the role of MPV in critically ill children, patients were divided into four categories, out of total 45 patients enrolled, 18 patients were having respiratory system involvement, 7 patients had circulatory failure, 7 patients had central nervous system involvement and rest of the patients were included in one

common group [63]. This discrepancy in our study with other studies could be due to different types of diseases found in different geographical areas.

PRISM score and outcome:

There are different types of scoring system like PRISM, SOFA, PELOD, APACHE to predict the mortality and severity of the disease in critically ill patients. In our study, PRISM score was calculated. The mean PRISM score in our study was 18.96 (S.D.11.62). We divided our cases into two groups with respect to PRISM score. The relation of PRISM and outcome has a significant p value of 0.001.

Elmoneim et al. conducted a study on changes in MPV in 45 critically ill children .Similar to our study PRISM score was used to assess the severity of the disease. The mean PRISM score was 10.5 (Range 6.0 – 16) [57].

Choi SJ et al. conducted a study to assess the role of Platelet Indices in Paediatric Septic Shock Patients, PRISM III score was used to assess the severity of disease. The mean PRISM III score was 15.67 ± 8.17 and similar to our study, patients with higher score had a significant relation with poor outcome [10]. In addition to PRISM score, SOFA and VIS score were also calculated in this study and both had a significant relation with the outcome.

R.A.C.Saragih et al. did a study on platelet profile in critically ill children .They divided 80 patients into two groups , survivors and non survivors .PELOD score was done to assess the severity of the disease . High PELOD Score was seen in non survivors group and there was a significant relation between outcome and the score [58].

Final Outcome:

In our study, out of total 156 patients enrolled, 100 patients (64.1%) survived and were shifted from PICU whereas 50 patients (32.1%) died and remaining 6 patients (3.8%) went DAMA. In a study conducted by Mohammed Zolaly et al. To assess the changes in mean platelet volume in critically ill children and its relation to other clinical and laboratory

findings. Out of total 45 patients enrolled in the study, 8 patients (17.8%) died [58].

In a study conducted by Chan Ho Kim et al., Total 345 patients were enrolled. Out of these 345 patients, 310 patients (89.8 %) survived and 35 patients (10.1%) died [11].

R.A.C.Saragih et al. did a study on platelet profile in critically ill children. This study had a mortality of 30% which is almost similar to our study [58].

We included patients admitted with thrombocytopenia which is an independent risk factor for mortality, This might be the reason of higher mortality rate in our study. The difference in the mortality rate can also be due to different inclusion criteria for determining the study population and difference in the severity of illness at time of admission.

LABORATORY PARAMETERS:

Picture 9: Comparison of study table in different studies.

Study Parameters	İşgüder R et al. [1]		R. A. C. Saragih et al.[58]		Choi SJ et al.[10]		Samira Z. Sayed[63]		Kim CH et al.[11]		This study	
No. of Patients	188		80		83		66		345		156	
Demographics												
Age Group	NA		1month – 18 years		NA		NA		Adult patients		1month – 18 years	
Mean Age (In years)	50 months (3-162.5) Or 4.1 years		7.6 (0.08-17.8)		128.0 ± 159.6 Months OR 10.7 ± 13.3 years		NA		64.2 ± 15.7 years		93.11 months (S.D.59.87) or 7.8 Years	
Sex Ratio M:F	0.84:1		1.4:1		1.7:1		1.4:1		0.96:1		2.1:1	
Laboratory Parameters												
Mean Platelet Count	D1	268.3±89.5	D1	276.500 (33.000-626.000)	D1	121.1 ± 125.3	D1	265/ (115.5–381.5)	D1	209.1 ± 118.9	D1	79.50 (5-150)
	D3	NA	D3	288071.4 (158946.97)	D3	NA	D3	NA	D3	NA	D3	88.44 (10-301)
	D7	NA	D7	NA	D7	NA	D7	NA	D7	NA	D7	154.70 (10-709)
Relation with outcome	Low platelet count α Poor outcome		No significant relation with outcome		Low platelet count α Poor outcome		Low platelet count α Poor outcome		Low platelet count α Poor outcome		Low platelet count α Poor outcome	
Difference Platelet count	NA		NA		NA		NA		NA		1*	12.39 ±45.13

											2*	79.29 ±99.59
											3*	69.01 ±94.13
Relation with outcome	NA		NA		NA		NA		NA		Difference 2 (Day 1 – day 7) : Statistically significant with good outcome	
Mean MPV	D1	8.9±1.02	D1	9.2 (0.13-11.10)	D1	10.50 ± 1.12	D1	7.9/ (7.3–9.5)	D1	8.64 ± 1.20	D1	10.10± 1.57
	D3	9.5±1.09	D3	9.6 (0.02-31.6)	D3	NA	D3	NA	D3	8.96 ± 1.19	D3	10.55± 1.57
	D7	NA	D7	NA	D7	NA	D7	NA	D7	NA	D7	10.61± 1.66
Relation with outcome	High MPV α Poor outcome		No statistical significance with outcome		No statistical significance with outcome		High MPV α poor outcome		High MPV α poor outcome		No statistical significance with outcome	
Difference in MPV	1*	9.5±1.09	NA		NA		NA		1*	0.32 ± 0.95	1*	0.51± 1.62
	2*	NA							2*	NA	2*	0.54± 1.85
	3*	NA							3*	NA	3*	0.03± 1.81
Relation with outcome	High Difference α Poor outcome		NA		NA		NA		High Difference α Poor outcome		No statistical significance with outcome	
MPV/Platelet ratio	NA		D1	3.63 (0.08-32.4)	NA		NA		NA		D1	0.27± 0.30

			D3	3.8 (0.06-63.1)					D3	0.18± 0.13
			D7	NA					D7	0.12± 0.13
Relation with outcome	NA		Increasing ratio α Poor outcome		NA		NA		Decreasing MPV/Platelet ratio α Good outcome	
Hemoglobin (Hb)	D1	10.7±1.5	NA		NA		NA	D1 12.3 ± 2.2	D1	9.72± 2.84
	D3	NA						D3 NA	D3	9.59± 2.57
	D7	NA						D7 NA	D7	9.02± 2.03
Morbidity										
Ventilation	58(30.9%)		NA		NA		49(81.7%)	NA	92(59%)	
Inotropes	NA		NA		NA		27(45%)	NA	85(54.5%)	
Severity Score										
PRISM	Survivor	8 (2-17)	NA		Survivor	13.55 ± 5.67	Survivor	11 (10-15.5) NA	Score <10	Mortality 0%
	Non survivor	25 (17-49)			Non survivor	21.95 ± 10.95	Non survivor	26 (24-40)	Score >10	Mortality 49%
Relation of outcome	High Score α Poor outcome		NA		High Score α Poor outcome		High Score α Poor outcome	NA	High Score α Poor outcome	
PELOD	Survivor	10 (1-20)	Survivor		3 (0-11)	NA	NA	NA	NA	
	Non survivor	30 (20-42)	Non survivor		5 (0-14)					
Relation with Outcome	High Score α Poor outcome		High Score α Poor outcome		NA		NA	NA	NA	
SOFA	NA		NA		Survivor	8.87 ±	NA	Survivor 7.7 ± 2.6	NA	

				2.72				
			Non survivor	12.19 ± 10.95		Non survivor	11.1 ± 3.0	
Relation with Outcome	NA	NA	High Score α Poor outcome		NA	High Score α Poor outcome		NA
Mortality	32 (17%)	24(30%)	21(25.3%)		19(31.7%)	35(10.1%)		50(32.1%)

*Difference-1 day 1 – day 3.

*Difference-2 day 1 – day 7.

*Difference-3 day 3 – day 7.

LABORATORY PARAMETERS AND OUTCOME:

Hemoglobin and outcome:

Complete blood count sample was sent for every patient at admission. The mean hemoglobin on day 1 of admission was 9.97 (S.D.2.93) , On day 3 ,mean hemoglobin was 9.54 (S.D.2.28) and On day 7 mean hemoglobin was 9.23 (S.D. 1.64) . The difference in haemoglobin in survivor and non-survivor was not significant in our study.

In a study done by Rana İşgüder et al., hemoglobin value was noted at time of admission only and they have mean haemoglobin of 10.7±1.5. Role of hemoglobin was not assessed with the outcome in this study [1]. Another study done by Abeer Abd Elmoneim in which mean hemoglobin was 9.6 (8.3-11.5) which is almost similar to our study [57].

Similarly, in a study done by Chan Ho Kim et al. There was no significant change in haemoglobin in survivor and non-survivor group. There was a Mean haemoglobin of 12.3 ± 2.2 in survivor and 12.0 ± 2.1 in non survivors. The p value in

this study came to be 0.471 [11]. We had a lower mean hemoglobin value in our study; this might be due high prevalence of anemia in our geographical area.

Platelet count:

In our study, Thrombocytopenia was the main inclusion criteria. So all the patients had platelet count of < 150 x 10^9/ L. Platelet count and other platelet indices were noted on day 1, day 3 and day 7 of PICU admission

Mean Platelet count:

On day 1 , mean platelet count was 79.50 (5.00-156.00), On day 2 , mean platelet count was 88.44(10.00-301.00), On day 3 , mean platelet count was 154.70(10.00-709.00) . In our study there was progressively rising trend of platelet count over the PICU stay in patients who had good outcome.

In a study done by Mohammed Zolaly et al. Did a study in 2018 to assess the change in MPV in critically ill children, the mean platelet count at time of admission was 306 (185-410) [63].

Seung Jun Cho et al .did a study on platelet indices in paediatric septic shock patients.

The mean platelet count at time of admission was 121.1 ± 125.3 which is much higher than our study [10].

The difference may be due to difference in the inclusion criteria. In our study, all patients had thrombocytopenia whereas in this study, the inclusion criteria was patients with septic shock, not all patients had thrombocytopenia in this study.

Platelet count and outcome:

In our study, platelet count has a rising trend over the duration of stay in hospital and this had a significant relation with the outcome. Therefore, rising platelet count is associated with good outcome. In a study done by Chan Ho Kim et al., total 345 patients were enrolled, Mean platelet count in survivors was almost double than in non survivors , the difference in platelet count in two group has a p value of 0.001 which is significant [11].

Similarly in a study done by Rana İşgüder et al. Out of total 188 patients, Mean platelet count in survivor was 286.6±87.1 whereas in patients who

died, mean platelet count was 179.1±21.8. There is a significant difference in platelet count in survivor and non-survivor patients [1].

Difference in platelet count and outcome:

For all the patients admitted to PICU with thrombocytopenia, difference in platelet count was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day 7. In patients who were shifted from PICU had a significant difference in platelet count due to increase in platelet count. Maximum difference was recorded between day 1 and day 7. The p value came to be 0.000 which is significant. In patients who died, the difference between change in platelet count has a p value of 0.316 which is not significant (p >0.05) .Therefore, a rising platelet count is associated with good outcome.

In a study done by Rana İşgüder et al., to assess the role of Increased MPV in sepsis patients as a predictor of mortality, a total 188 cases were enrolled. In this study , difference in serial platelet count was not done but patients were assessed on the basis of platelet count at time of admission, Mean platelet count in survivor was 286.6±87.1 whereas in patients who died , mean platelet count was 179.1±21.8[1].

Similarly, In a study done by Seung Jun Choi et all in 2017, only platelet count at admission was noted and patients with low mean platelet count were associated with poor outcome. Along with platelet count PDW (Platelet distribution width) was also noted at time of admission. In patients who survived, mean PDW was 12.48 ± 2.98 whereas patients, who died, mean PDW was 11.23 ± 2.05. The difference in PDW in survivor and non-survivor was not significant [10].

This is the first study of platelet indices in which difference in platelet count was assessed to predict the outcome in patients with thrombocytopenia.

MPV:

On day 1, MPV was noted in total 156 patients and mean MPV was 10.02(S.D.1.58). On day 3, MPV was noted in 135 patients and mean MPV was 10.48 (S.D.1.54) and on day 7, MPV was done only in 102

patients and they had mean MPV of 10.45 (S.D. 1.65). There was no significant change in value of MPV over the duration of stay in Paediatric ICU.

MPV and outcome:

In our study the role of MPV as a predictor of outcome in critically ill patients had no significance.

In a study done by Rana İşgüder et al in 2016 on MPV in children with sepsis, MPV values were noted at admission and 72 hours of admissions, Patients who survived had relatively lower mean value of MPV. The mean MPV at admission in patients who survived was 8.7±0.97 and whereas patients who died had mean MPV 9.6±0.94. Mean MPV done at 72 hours in patients who survived was 9.3±0.97 and mean MPV in patients who died 10.7±0.92. There is a significant role of MPV in patients with poor outcome [1].

Chan Ho Kim et al .did a study on MPV in patients with septic shock. MPV was noted at admission and 72 hours of admission. At admission, Mean MPV in patients who survived was 8.54 ± 1.10 and patients who died was 9.54 ± 1.66. At 72 hours, Mean MPV in patients who survived was 8.80 ± 1.01 and in patients who died was 10.35 ± 1.69.There is a significant relation of MPV with poor outcome in this study [11].

In a study done by Seung Jun Choi et al. On platelet indices in paediatric septic shock patients, MPV was noted at admission. In patients who survived mean MPV was 10.63 ± 1.18 and patients who died was 10.10 ± 0.80. There was no significant relation of MPV and outcome in this study [10].

Similar to our study, Shradha Khatr et al. Did a study in dengue patients. It was noted that there was no variation in platelet parameters in dengue patients [12].

The discrepancy in our study and other studies might be due to lack of serial MPV monitoring in our study in patients who died before 72 hours. It might be due to different inclusion criteria and difference in severity of

disease in patients. Moreover, majority of the patients in our study were of dengue fever and as noted in previous studies, MPV had no significant role in these patients [12].

Difference in MPV and outcome:

For all the patients admitted to PICU with thrombocytopenia, difference in MPV was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day7. In patients who survived and were shifted from Paediatric ICU, The mean difference between day 1 and day 3 was 0.51 (S.D.1.62), day 1 and day 7 was 0.54 (S.D.1.85), day 3 and day 7 was 0.03(S.D. 1.81). The p value came to be 0.126 which is not significant (p>0.05).In patients who died mean difference between day 1 and day 3 was 0.74(S.D.1.58), day 1 and day 7 was 0.69 (S.D.1.45), day 3 and day 7 was -0.16 (S.D.1.61). The p value came to be 0.102 which is not significant (p > 0.05).

Rana İşgüder et al. in their study concluded that Difference in MPV between day of admission and 72 hours had a significant relation with outcome. A change in > 0.79 fl was associated with poor outcome as these patients had shorter survival [1].

In a study done by Abeer Abd Elmoneim et al, Difference in MPV at admission and 48 hours after admission was noted. Mean difference in patients who survived was 1.00 (0.30-1.95) and in patients who died was 0.10 (-1.33-0). There was a significant relation of MPV and outcome [57].

In a study done by Chan Ho Kim et al., MPV was noted at admission and at 72 hours of admission. The difference in MPV in patients who survived was 0.26 ± 0.89 and in patients who died was 0.80 ± 1.30. The relation of difference in MPV and outcome has a significant p value [11].

In our study, the difference in MPV and outcome has no significant role. This may be due to lack of serial MPV and platelet monitoring in patients who died before 72 hour. Also in our study, one third patients were of dengue patients, and in many studies done, it was concluded that MPV has no significant role in dengue patients.

MPV / Platelet count ratio and outcome:

MPV to platelet ratio was calculated on day 1, day 3 and day 7 of PICU stay. In patients who survived and were shifted from PICU, Mean value of ratio on day 1 was 0.27 (S.D. 0.30), day 3 was 0.18(S.D. 0.13), day 7 was 0.12(S.D. 0.13). In patients who died, mean ratio on day 1 was 0.26(S.D.0.27), day 3 was 0.24(S.D.0.25), day 7 was 0.19(S.D.0.18). There is fall in ratio from day 1 to day 7 but the significant fall occurs on day 7 in patient who survived. The p value in shifted patients on day 7 came to be 0.048 which is significant ($p<0.05$).

In our study it was noted that, decreasing MPV/Platelet ratio on day 7 is associated with good outcome.

In a study done by Zainab Mohammedi Golwala et al., It was noted that MPV alone was not a significant predictor of mortality, rather MPV / platelet ratio, MPV and PDW ratio has proven to be significant as a predictor of mortality [2]. But in this study, Laboratory values were noted only at time of admission and no serial monitoring was done.

R.A.C.Saragih et al. did a study in 80 patients. They recorded MPV and platelet count on day 1 and day 3. MPV / Platelet count ratio was calculated. It was noted that rising trend of the ratio had a significant relation with poor outcome [59].

In contrary to our study, this study found that rising trend of MPV/ Platelet count ratio was associated with poor outcome but we concluded that decreasing trend of this ratio had a significant association with good outcome.

Difference in MPV / Platelet ratio and outcome:

In our study, difference in MPV/ Platelet ratio was assessed between day 1 and day 3, day 1 and day 7 and day 3 and day 7. In patients who survived and were shifted from PICU, The mean difference between day 1 and day 3 was 0.27 (S.D.0.30), day 1 and day 7 was 0.18 (S.D.0.13), day 3 and day 7 was 0.12(S.D. 0.13). The p value came to be 0.000 which is significant ($p<0.05$).

In patients who died mean difference between day 1 and day 3 was 0.26(S.D.0.27), day 1 and day 7 was 0.24 (S.D.0.25), day 3 and day 7 was 0.19 (S.D.0.18). The p value came to be 0.579 which is not significant (p >0.05). In patients who died, the value of MPV / Platelet ratio was not significant. This might be due to lack of serial monitoring in these patients as most of the patients died before getting the three lab values.

Zainab Mohammedi Golwala et al.conducted a study on platelet indices and concluded that MPV/ Platelet ratio had better predictive value than MPV alone but they did not calculate the difference or change in the ratio [2].

MPV subgroup and outcome:

The patients admitted to PICU with thrombocytopenia were divided into 3 groups with respect to MPV values – Low MPV < 6.5, Normal MPV 6.5-11.6 and high MPV > 11.6. Majority of the patients in our study had normal range of MPV.

In our study, it was noted that, patients with low MPV < 6.5 on day 3 and day 7 have poor outcome and has a significant p value.

In a study done by Rana İşgüder et al., there were two groups -study group and control group. The mean MPV in study group at admission was higher than the control group. MPV was not subdivided into low, normal and high groups but it was noted that patients with increased inflammatory markers like CRP, Procalcitonin had relatively high MPV. It was noted that patients with MPV > 9 fl had shorter survival [1].

Similarly , in a study done by Abeer Abd Elmoneim et al. MPV was noted at admission and at 48 hours of admission but patients were not divided into further sub group with respect to Low, normal or high MPV [57].

In a study done by Shradha Khatr et al., Patients were subdivided into subgroups with respect to MPV values but the range was different from our study. In this study, Normal range of MPV was 7.5 to 11.5 fL [12].

Nandwani S et al. did a study in children with dengue fever to assess the role of various haematological parameters as mortality predictor. They concluded that high TLC, low platelet count, and low MPV at time of admission are potential predictors of shock and fatal outcome in the course of disease [60].

PRISM II AND LABORATORY PARAMETERS:

Relation of platelet and PRISM:

To assess the severity of the disease we calculated PRISM score and divided patients into 2 groups with respect to PRISM. The relation of PRISM with platelet count had no significance.

In a study done by Rana İşgüder et al. PRISM III score was done instead of PRISM II as done in our study. In this study, PRISM score has a significant relation with MPV at admission, at 72 hours and difference in MPV but PRISM score was not correlated with platelet count [1].

In a study by Seung Jun Choi et al., PRISM III score was calculated to assess the severity of disease but it was not correlated with laboratory parameters [10].

Similar to our study, Abeer Abd Elmoneim et al. in their study correlated PRISM with MPV and not with Platelet count, but the relation has no significant p value [57]. The discrepancy in our study and other studies may be due to use of different PRISM score and different study population.

Relation of Difference in Platelet count and PRISM:

In our study, patients with PRISM < 10 had high difference in platelet count over the subsequent days due to increase in the platelet count. Since PRISM is a known score with good predictor of outcome, hence in our study rising platelet count has proved to be a good predictor of outcome as it had a significant relation with PRISM

In a study done by Zainab Mohammedi Golwala et al., PRISM III score was calculated to assess the severity but it was not correlated with laboratory parameters [2].

Choi SJ et al. Did a study on platelet indices in paediatric septic shock patients. They used 3 severity scores like PRISM, SOFA, VIS to assess the severity of the disease in patients but these scores were not compared with the laboratory parameters [10].

Relation of MPV and PRISM:

On day 1, Patients with PRISM score < 10 has mean MPV of 10.13(S.D. 1.58). Patient with PRISM > 10 has mean platelet of 9.97(S.D. 1.59). The relation of PRISM with MPV on day 1 has a p value of 0.596 which is not significant. On day 3, Patients with PRISM < 10 has mean MPV of 10.54(S.D. 1.60) and patients with PRISM > 10 has mean platelet of 10.45(S.D. 1.52). The relation of PRISM with platelet count on day 3 has a p value of 0.835 which is not significant. On day 7 , patients with PRISM < 10 has mean MPV of 10.51 (S.D.1.50) and patients with PRISM > 10 has mean platelet of 10.42(S.D.1.73) . The relation of PRISM with platelet count on day 7 has a p value of 0.745 which is not significant .In our study, MPV had no significant relation with PRISM.

In a study done by Abeer Abd Elmoneim et al, PRISM score was correlated with rise in MPV but similar to our study, the relation was not significant in this sudy [57].

In contrast to our study, Rana İşgüder et al. in their study showed a significant relation between MPV and PRISM. They concluded that non survivors had both higher MPV and PRISM score [1].The discrepancy in our study and other studies might be due to use of due to different types of patients and disease severity .

Relation of Difference in MPV and PRISM:

In our study, patients with PRISM < 10, Mean difference between day 1 and day 3 was 0.49 (S.D.59), Day 1 and day 7 was 0.38(S.D. 1.65) and day 3 and day 7 was -0.12 (S.D.2.02). The relation between difference in MPV and PRISM on day 1 and day 3 has a p value of 0.394 which is not significant (P>0.05), the p value of the relation between PRISM and MPV difference of day 1 and day 7 was 0.363 which is not significant. The p

value for difference of MPV day 3 and day 7 and PRISM was 0.861 which is not significant. In our study, the relation between difference in MPV and PRISM is not significant.

Rana İşgüder et al. Did a study in paediatric sepsis patient. They used PRISM and PELOD score to assess the severity and both the scores had a significant relation with MPV [1].

Relation of MPV/ Platelet ratio and PRISM:

The relationship of MPV/ platelet ratio with PRISM was done .In patient with PRISM score of < 10 has mean MPV / PLT ratio on day 1 was 0.27(S.D.0.33), On day 3 the ratio was 0.17(S.D.0.15) , on day 7 the ratio was 0.11(S.D.0.12).In patients with PRISM score of > 10 , the mean ratio on day 1 was 0.25(S.D.0.26), on day 3 the ratio was 0.21(S.D.0.26) , On day 7 the ratio was 0.14(S.D. 0.15) . The relation of PRISM score an MPV ratio has p value of more than 0.05 which is not significant.

In a study done by Zainab Mohammedi Golwala et al., It was noted that MPV alone was not a significant predictor of mortality, rather MPV / platelet ratio, MPV and PDW ratio has proven to be significant as a predictor of mortality [2]. But in this study, MPV/Platelet ratio was not correlated with PRISM.

Similarly, R.A.C.Saragih et al. calculated MPV/ platelet ratio at time of admission and at 72 hours but they did not compare the realtion of severity score and the laboratory parameters [58].

RELATION OF DENGUE PATIENTS AND LABORATORY PARAMETERS:

Relation of Hemoglobin and RDW in dengue patients:

In our study there were total 50 dengue patients. Different laboratory parameters were assessed between patients with dengue and without dengue. Mean Hb values were higher in dengue patients as compared to patients without dengue reflecting hemoconcentration.

In dengue patients , mean Hb on day 1 was 11.86 (S.D. 3.49) , On day 3 was 10.72(S.D.2.48) and on day 7 was 10.29(S.D.1.32), whereas in

patients without dengue , mean Hb on day 1 was 9.07 (S.D. 2.11) , On day 3 was 9.62(S.D. 6.31) and on day 7 was 8.85(S.D. 1.58) . The difference in Hb in both groups on day 1 has a p value of 0.001 which is significant, on day 3 the p value was 0.261 which is not significant and on day 7, the p value was 0.001 which is significant.

High Hemoglobin is seen in dengue patients at time of admission which gradually decreases over the period of time. This is mainly due to high hematocrit in dengue patients due to plasma leak in early phase of dengue.

In dengue patients , on day 1 mean RDW was 16.15 (S.D. 2.45) , on day 3 was 16.57(S.D. 2.83) , on day 7 was 16.40(S.D 2.08) whereas in patients without dengue , Mean RDW on day 1 was 18.46 (S.D.4.43) , on day 3 was 19.33 (S.D. 5.84) and day 7 was 19.78 (S.D. 6.65) .There was a significant difference of RDW between both the groups and p value came to be 0.001,0.003,0.011 which is significant.

There is significantly higher Hb in patients with dengue patients as compared to other patients which is mainly due to hemoconcentration [59].

Nandwani S et al.did a study in paediatric dengue patients to assess role of haematological parameters as predictor of outcome. Mean Hemoglobin in this study was 11.53 (2.17) done at time of admission. But they did not compare the role of haemoglobin with the patient outcome. They concluded that high TLC, low platelet count and low MPV had a significant role in poor outcome of the patient. [60]

Relation of Platelet in dengue patients:

In dengue patients, mean platelet count was initially lower and gradually increases over the duration of the stay as severity of the disease decreases. There is a significant difference in the platelet count in patients with dengue and without dengue.

In a study done by Mohan Makwana et al., mean platelet count in dengue positive patients was 64.91 ± 43.00 whereas in dengue negative patients, mean platelet count was 82.08 ± 40.29. Similar to our study, Dengue

patients had comparatively lesser platelet count than patients without dengue [61].

Relation of platelet count subgroup and Dengue patients:

In our study, severity of thrombocytopenia was compared in dengue patients. In patients with dengue , 37 patients (74%) had platelet count < 50,000, 7 patients (14%) had platelet count between 50,000-1,00,000 and 6 patients (12%) had platelet count >10,0000. In patients without dengue , 26 patients (24.5%) had platelet count < 50,000, 22 patients (20.75%) had platelet count between 50,000-1,00,000 and 58 patients (54.7%) had platelet count > 1,00,000.There is a significant difference in platelet count in patients with dengue fever and without dengue fever .

Mohan Makwana et al, in their study done in dengue patients, evaluated role of platelet indices and severity of the disease. In this study they divided the patients into subgroups with respect to severity of thrombocytopenia, in contrary to our study they made five subgroups and platetet indices were noted for 5 consecutive days instead of only 3 days. They concluded that patients with both IgM and IgG positive ELISA in dengue had more severe thrombocytopenia than in patients with only IgM positive dengue patients [61].

Mukker P et al. did a study in dengue patients. They divided the patients into 3 subgroups with respect to platelet count. These subgroups were further compared with various platelet indices and their ratios like MPV\PLC, MPV\Platecrit, PDW\PLC and PDW\Platecrit ratio which showed statistically significant difference between the different platelet groups [62].

Relation of MPV in dengue patients:

In dengue patients, mean MPV on day 1 was 9.89 (S.D.1.44), on day 3 was 10.54 (S.D.1.41), on day 7 was 10.54 (S.D.1.02) whereas in patients without dengue, mean MPV on day 1 was 10.08 (S.D.1.65), on day 3 was 10.45(S.D. 1.61), on day 7 was 10.42 (S.D.1.83). The difference in MPV in both the groups has a p value of 0.479, 0.769, 0.741 which is not

significant .In our study, there was comparatively lower MPV in dengue patients but the difference between two groups was not significant.

In a study done by Mohan Makwana et al ., Mean MPV in dengue positive patients was 10.32 ± 2.24 which was comparatively lower and mean MPV in dengue negative patients was 11.07 ± 1.91 and there is a significant p value of their relation. They further concluded that High MPV, High PDW, Low PCT was associated with increased morbidity, these patients had increased duration of hospital stay, longer duration of fluid therapy, longer ICU stay [61].

Kritika Sharma et al. did a study in dengue patients and had a significant association of thrombocytopenia with dengue infection. In this study, MPV was done corresponding to minimal platelet count and at time of discharge but no significant difference was observed in MPV with severity of disease in dengue patients [13].

Mukker P et al did a study in dengue patients and found no significant correlation between MPV and disease severity in dengue patients. They further noted that patients with platelet count < 20000 had lower MPV than patients with higher platelet count. This might be due to the marrow suppression in dengue patients. Thus proving the reason of non-significant relation of rising MPV with poor outcome in our study because majority of the patients in our study were of dengue fever and with thrombocytopenia [62].

Relation of MPV / Platelet ratio in dengue patients:

In Dengue patients, Mean MPV / PLT ratio on day 1 was 0.39 (S.D.0.26), on day 3 was 0.22 (S.D.0.12), on day 7 was 0.15 (S.D.0.15) whereas in patients without dengue, mean MPV / PLT on day 1 was 0.19 (S.D.0.27), on day 3 was 0.19 (S.D. 0.19), on day 7 was 0.12(S.D. 0.14). The difference in MPV / PLT ratio on day 1 has a p value of 0.001 which is significant, on day 3 was 0.418 which is not significant and on day 7 was 0.342 which is not significant.

In a study done by Mohan Makwana the association of Platelet and MPV was assessed but MPV to platelet ratio was not assessed [61].

Similarly, in a study done by Kritika Sharma et al., the association of thrombocytopenia with dengue infection has been proved to be significant but role of MPV/ PLT ratio was not assessed [13].

Mukker P et al did a study in dengue patients, they compared MPV / Platelet ratio with subgroups of platelet count and found a statistically significant difference thus proving the need to assess the utility of these indices in dengue fever [62].

MORBIDITY AND OUTCOME:

Ventilation and outcome:

Many patients (59%) require ventilation for respiratory support in our study. Out of total 92 ventilated patients, majority patients (90.2%) require invasive ventilation and there is a significant relation of ventilation with poor outcome in our study.

Rana İşgüder et al. did a study in 188 patients to assess role of MPV in children with sepsis. They divided the patients into two groups, survivors and non survivors. Mechanical ventilation was given in 30.9% patients and similar to our study there was a significant relation of need for ventilation and poor outcome [1].

Elmoneim et al. conducted a study on changes in MPV in 45 critically ill children.In this study, majority of the patients (82.2%) required mechanical ventilation within first 48 hours. They compared the need of ventilation with the change in MPV but there was no significant relation with need for ventilation and change in MPV [57]. However in both these studies, type of ventilation was not mentioned. This is in contrast to our study. It could be due to the severity of sickness admitted to our intensive care unit as well as difference in the age group of the study population.

Relation of MPV and need for ventilation:

In our study it was noted that there was no significant difference in value of MPV and the need for ventilation in the patients.

Elmoneim et al. did a study to assess the role of MPV in critically ill children. They divided the patients into two groups – MPV rise and MPV no rise group. Different parameters like need for ventilation, centre line insertion and blood product transfusion were compared with two groups but there was no statistically significant relation between these [57].

Inotropes requirement and outcome:

For management of shock, inotropes were used in 54.5% patients and there is a significant relation of need for inotrope and poor outcome. In a study done by Samira Z. Sayed et al. in 2019 conducted a prospective study in children with severe sepsis in 60 patients ,45% patients required inotrope support in this study but the need for inotrope was not compared with the outcome [63].

Relation of MPV and need for inotrope:

In our study it was noted that there was no significant difference in value of MPV and the need for inotropic support for management of shock in the patients.

Elmoneim et al. did a study to assess the role of MPV in critically ill children. They divided the patients into two groups – MPV rise and MPV no rise group. Different parameters like need for ventilation, centre line insertion and blood product transfusion were compared with two groups but there was no statistically significant relation between these. They did not assess the need for inotropes in different MPV group [57].

Duration of stay and outcome:

In our study done in 150 patients, maximum patients had a PICU stay of 3 – 7 days and these patients had good outcome (Mortality -24.0%) as compared to other groups. Patients with prolonged stay of > 14 days has relatively poor outcome (Mortality - 37.5%) compared to patients with stay of 3-7 days. But the patients with < 3 days of PICU stay has worst outcome (Mortality 88.9%). Less duration of stay in these patients may be due to the severity of the illness. Mean duration of stay in our study was 7.3 days (S.D. 8.09).

In a study by Mohammed Zolaly et al., total 45 patients were enrolled, mean length of stay was 21 days longer as compared to our study. Minimum stay was 12.5 days as compared to 1 day in our study and maximum stay was 31 days as compared to 68 days in our study [2].

Relation of MPV and duration of stay:

The relation between MPV and duration of stay was assessed in our study. It was seen that patients with relatively lesser stay had relatively high MPV as compared to patients with longer duration of stay. But the difference had no statistically significant p value.

Elmoneim et al. did a study to assess the role of MPV in critically ill children. In this study duration of hospital stay was compared with two subgroups of the patients. The patients who had a rise in MPV had a longer hospital stay due to increased severity whereas patients with no rise in MPV had relatively shorter duration of stay. This study had a significant relation between rise in MPV and longer hospital duration [57].

SUMMARY AND CONCLUSION

This study was a prospective observational study of 1 year. Children 1 month to 18 years of age admitted with thrombocytopenia at time of presentation to Paediatric ICU, Dayanand Medical College and Hospital, Ludhiana were included. Serial Laboratory parameters were assessed at time of admission, at 72 hours and day 7 of PICU admission and data was analysed for morbidity (in terms of duration of PICU stay, ventilation and need for inotropes) and mortality.

- A total 498 patients were admitted to Paediatric ICU over the study period out of which 156 patients that met the inclusion criteria were enrolled.
- The mean age of presentation was 7.8 years (1 month to 18 years). Majority of the patients (34%) were in the age group of more than 10 years .Male to female ratio was 2.1: 1.
- Most patients requiring PICU admissions were due to infections (43.6%) and dengue was most common (73.5%) in these patients and most common system involved was central nervous system (13.5%).
- PRISM II score was calculated to assess the severity. Majority of the patients (69.2%) had a score of more than 10 and had a significant relation with poor outcome.
- The mean platelet count on day 1 was 79.50 (5.00-150.00) ,On day 3 was 88.44(10.00-301.00) , On day 7 was 154.70(10.00-709.00) .
- The mean MPV on day 1 was 10.02(6.50-15.10), on day 3 was 10.8(6.70-15.40), on day 7 was 10.45(6.60- 16.10) .
- The mean MPV/ Platelet ratio on day 1 was 0.26(0.05 – 1.73), on day 3 was 0.20(0.02-1.15), on day 7 was 0.13(0.01-0.95).
- The increase in platelet count over the hospital stay was associated with good outcome with a significant p value.
- We did a comparison of difference in platelet count of 3 laboratory values with outcome. There was a statistically significant difference in patients having high difference due to increase in platelet count with good outcome.

- Patients were divided into three groups with regard to platelet count and these subgroups were compared with the outcome but there was no statistically significant difference between the outcomes of the three groups.
- The relation between PRISM score and difference in platelet count of day 1 and day 3, day 1 and day 7 has a statistically significant p value. High difference was seen in patients with PRISM score of < 10 and these patients had good outcome.
- MPV was noted on day 1, day 3 and day 7 and comparison of change in MPV with the outcome was done but there was no statistically significant relation.
- MPV was compared with the need for ventilation and inotropic support in patients but there was no statistically significant difference in MPV value with both the parameters
- MPV, Difference in MPV and MPV/ Platelet count ratio was compared with PRISM score to assess the severity. But the relation of PRISM with these platelet parameters had no statistical significance
- Decreasing MPV / platelet ratio was seen in patients with good outcome and had a statistically significant p value. MPV alone had no significant value as a predictive marker for outcome.
- Majority of the patients were of dengue fever and only platelet count had a significant relation in these patients. As noted in previous studies, MPV and dengue fever had no relation. There was no statistically significant relation of MPV, MPV / Platelet ratio in dengue patients.
- Out of all the patients suffering from infectious disease, dengue was most common and due to bone marrow depression in dengue patients there might be decreased rise in MPV in critically ill children. This might be the reason of non-significant relation of rising MPV with poor outcome in our study.

- Patients were subdivided into 3 groups based on the value of MPV and it was found that patients with lower MPV value <6.5 were associated with poor outcome and the relation had a statistically significant p value.
- The overall mortality rate of our PICU was 11.2 %. The mortality in 342 patients with no thrombocytopenia at admission was 1.8 % and the mortality rate in patients with thrombocytopenia at admission was 32%.

  We found that the platelet count and ratio of MPV/ Platelet count was a better predictor of mortality than MPV alone. This suggests that although there was no statistically significant difference in MPV between those who survived and those who died, there must have been subtle change in the MPV and significant increase in platelet count in patients with good outcome .This could have resulted from an increase in the production of platelets and the release of immature and larger platelets into the circulation to meet the increase demands. Careful monitoring in form of various clinical and laboratory parameters including different platelet indices (MPV, PDW, PCT) is very helpful in early identification, prognostication, and prevention of complications in critically ill children. This is the first study of Platelet indices used to determine the outcome of children with thrombocytopenia in the region. In addition, it was also evaluated that various parameters like age, gender, underlying primary system informed, need for ventilation and inotropes and duration of stay can affect the outcome.

Limitations of the study:

We acknowledge certain limitations of our study.

- The relatively small size of the sample population might have resulted in a less precise estimation of the accuracy of the results.
- We have conducted our study on a subset of patients admitted to PICU with a clinical diagnosis of thrombocytopenia therefore results of our study may not be generalizable for children without thrombocytopenia.
- We have noted laboratory parameters like MPV, platelet count at admission, at 72 hours and on day 7 of admission but other time points may have yielded different results.
- We could not evaluate the serial platelet indices in many patients due to early shifting from PICU or expiry before noting all the three laboratory parameters at the decided time points otherwise we may have yielded different results .
- The influence of preanalytical factors that effect the MPV values were not taken into consideration.

BIBLIOGRAPHY

1. İşgüder R, Ceylan G, Ağın H, Nacaroğlu HT, Korkmaz HA, Devrim İ, et al. Increased mean platelet volume in children with sepsis as a predictor of mortality. Turk J Pediatr. 2016; 58:503-11.
2. Golwala ZM, Shah H, Gupta N, Sreenivas V, Puliyel JM. Mean Platelet Volume (MPV), Platelet Distribution Width (PDW), Platelet Count and Plateletcrit (PCT) as predictors of in-hospital paediatric mortality: a case-control Study. Afr Health Sci. 2016; 16:356-62.
3. Zareifar S, Farahmand Far MR, Golfeshan F, Cohan N. Changes in platelet count and mean platelet volume during infectious and inflammatory disease and their correlation with ESR and CRP. J Clin Lab Anal. 2014;28:245-8
4. Linke B, Schreiber Y, Picard-Willems B, Slattery P, Nüsing RM, Harder S, et al. Activated Platelets Induce an Anti-Inflammatory Response of Monocytes/Macrophages through Cross-Regulation of PGE_2 and Cytokines. Mediators Inflamm. 2017;2017:1463216.
5. Kaushansky K. The molecular mechanisms that control thrombopoiesis. J Clin Invest. 2005;115:3339-47.
6. Barnard MR, Krueger LA, Frelinger AL 3rd, Furman MI, Michelson AD. Whole blood analysis of leukocyte-platelet aggregates. Curr Protoc Cytom. 2003;Chapter 6:Unit 6.15.
7. Zsóri KS, Mahalek JM, Mokarrami MA, Csiki Z, Shemirani AH. Preanalytical factors affecting the mean platelet volume: a review. Global Journal of Hematology and Blood Transfusion. 2016;3:19-22.
8. Shemirani AH. Influence of preanalytical factors on the mean platelet volume. Eur Arch Otorhinolaryngol. 2016;273:4039.
9. Korniluk A, Koper-Lenkiewicz OM, Kamińska J, Kemona H, Dymicka-Piekarska V. Mean Platelet Volume (MPV): New Perspectives for an

Old Marker in the Course and Prognosis of Inflammatory Conditions. Mediators Inflamm. 2019; 2019:9213074.

10. Choi SJ, Ha EJ, Jhang WK, Park SJ. Platelet indices as predictive markers of prognosis in paediatric septic shock patients. Iranian Journal of Paediatrics. 2017; 27.
11. Kim CH, Kim SJ, Lee MJ, Kwon YE, Kim YL, Park KS, et al. An increase in mean platelet volume from baseline is associated with mortality in patients with severe sepsis or septic shock. PloS one. 2015; 10:e0119437.
12. Khatri S, Sabeena S, Arunkumar G, Mathew M. Utility of Platelet Parameters in Serologically Proven Dengue Cases with Thrombocytopenia. Indian J Hematol Blood Transfus. 2018;34:703-6.
13. Khatri S, Sabeena S, Arunkumar G, Mathew M. Utility of Platelet Parameters in Serologically Proven Dengue Cases with Thrombocytopenia. Indian J Hematol Blood Transfus. 2018;34:703-6.
14. Jayshree M, Kulgod V, Sharma AK.Recognition of sick child : A structured approach .IAP ALS Handbook .2nd.edition .IAP National Publication House :New Delhi ;2020.10-28.
15. Jayshree M, Kulgod V, Sharma AK. The unconscious child .. IAP ALS Handbook .2nd.edition .IAP National Publication House :New Delhi ;2020.148-155
16. Zhang Z, Xu X, Ni H, Deng H. Platelet indices are novel predictors of hospital mortality in intensive care unit patients. Journal of critical care. 2014 ;29:885-e1.
17. Zampieri FG, Ranzani OT, Sabatoski V, de Souza HP, Barbeiro H, da Neto LM, et al. An increase in mean platelet volume after admission is associated with higher mortality in critically ill patients. Ann Intensive Care. 2014 Jun 27;4:20.

18. Taniguchi T, Takagi D, Takeyama N, Kitazawa Y, Tanaka T. Platelet size and function in septic rats: changes in the adenylate pool. J Surg Res. 1990;49:400-7.
19. Zdrojewski Z, Raszeja-Specht A, Kustosz J, Skibowska A, Rutkowski B. Evaluation of factors influencing platelet aggregation in patients with chronic glomerulonephritis (CGN). Przeglad Lekarski. 1996;53:434-8.
20. Karaman H, Karakukcu C, Kocer D. Can mean platelet volume serve as a marker for prostatitis? Int J Med Sci. 2013;10:1387-91.
21. Karpatkin S. Heterogeneity of human platelets. I. Metabolic and kinetic evidence suggestive of young and old platelets. J Clin Invest. 1969 ;48:1073-82.
22. Van der Lelie J, Von dem Borne AK. Increased mean platelet volume in septicaemia. J Clin Pathol. 1983;36:693-6.
23. Karpatkin S, Garg SK, Siskind GW. Autoimmune thrombocytopenic purpura and the compensated thrombocytolytic state. Am J Med. 1971; 51:1-4.
24. Ye S, Zhang Y, Zhang C, Xu D. Are platelet volume indices related to mortality in hospitalized children on mechanical ventilation? J Int Med Res. 2018; 46:1197-1208.
25. Eldor A, Avitzour M, Or R, Hanna R, Penchas S. Prediction of haemorrhagic diathesis in thrombocytopenia by mean platelet volume. Br Med J (Clin Res Ed). 1982;285:397-400.
26. Dobrijević D, Antić J, Rakić G, Andrijević L, Katanić J, Pastor K. Could platelet indices have diagnostic properties in children with COVID-19? J Clin Lab Anal. 2022;36:e24749.
27. Antić J, Jokić R, Bukarica S, Lukić I, Dobrijević D, Rakić G, et al. Predictive Value of Red Blood Cell Distribution Width, Mean Platelet

Volume and Platelet Distribution Width in Children with Acute Appendicitis. Children (Basel). 2021;8:1041.

28. Uyanik B, Kavalci C, Arslan ED, Yilmaz F, Aslan O, Dede S, et al. Role of mean platelet volume in diagnosis of childhood acute appendicitis. Emerg Med Int. 2012;2012:823095.
29. Shah A, Morgan G, Rose JD, Fifield R, Rhodes J. Platelet number and size in relation to serum orosomucoid concentration in Crohn's disease. Med Lab Sci. 1989;46:79-80.
30. Collins CE, Cahill MR, Newland AC, Rampton DS. Platelets circulate in an activated state in inflammatory bowel disease. Gastroenterology. 1994;106:840-5.
31. lavka G, Perkmann T, Haslacher H, Greisenegger S, Marsik C, Wagner OF, et al. Mean platelet volume may represent a predictive parameter for overall vascular mortality and ischemic heart disease. Arterioscler Thromb Vasc Biol. 2011;31:1215-8.
32. Bath PM, Butterworth RJ. Platelet size: measurement, physiology and vascular disease. Blood Coagul Fibrinolysis. 1996;7:157-61.
33. Endler G, Klimesch A, Sunder-Plassmann H, Schillinger M, Exner M, Mannhalter C, et al. Mean platelet volume is an independent risk factor for myocardial infarction but not for coronary artery disease. Br J Haematol. 2002 ;117:399-404.
34. Canpolat FE, Yurdakök M, Armangil D, Yiğit S. Mean platelet volume in neonatal respiratory distress syndrome. Pediatr Int. 2009;51:314-6.
35. Mercan R, Demir C, Dilek İ, Asker M, Atmaca M. Mean platelet volume in acute coronary syndrome. Van tip dergisi. 2010;17:89-95.
36. Kisacik B, Tufan A, Kalyoncu U, Karadag O, Akdogan A, Ozturk MA, et al. Mean platelet volume (MPV) as an inflammatory marker in ankylosing spondylitis and rheumatoid arthritis. Joint Bone Spine. 2008 ;75:291-4.

37. Yüksel O, Helvaci K, Başar O, Köklü S, Caner S, Helvaci N, et al. An overlooked indicator of disease activity in ulcerative colitis: mean platelet volume. Platelets. 2009;20:277-81.

38. Järemo P, Sandberg-Gertzen H. Platelet density and size in inflammatory bowel disease. Thromb Haemost. 1996;75:560-1.

39. Kayahan H, Akarsu M, Ozcan MA, Demir S, Ates H, Unsal B, et al. Reticulated platelet levels in patients with ulcerative colitis. Int J Colorectal Dis. 2007;22:1429-35.

40. Danese S, Motte Cd Cde L, Fiocchi C. Platelets in inflammatory bowel disease: clinical, pathogenic, and therapeutic implications. Am J Gastroenterol. 2004;99:938-45.

41. Thompson CB, Eaton KA, Princiotta SM, Rushin CA, Valeri CR. Size dependent platelet subpopulations: relationship of platelet volume to ultrastructure, enzymatic activity, and function. Br J Haematol. 1982;50:509-19.

42. Bessman JD, Gardner FH. Platelet size in thrombocytopenia due to sepsis. Surg Gynecol Obstet. 1983;156:177-80.

43. Van der Lelie J, Von dem Borne AK. Increased mean platelet volume in septicaemia. J Clin Pathol. 1983;36:693-6.

44. Dastugue N, Picheloup F, Sie P, Genestal M, Cathala B, Boneu B. Augmentation du volume moyen plaquettaire dans les thrombopénies des états de choc [Increase in mean platelet volume in shock-related thrombocytopenia]. Nouv Presse Med. 1982;11:2899-901.

45. O'Connor TA, Ringer KM, Gaddis ML. Mean platelet volume during coagulase-negative staphylococcal sepsis in neonates. Am J Clin Pathol. 1993;99:69-71.

46. Zhang S, Cui YL, Diao MY, Chen DC, Lin ZF. Use of Platelet Indices for Determining Illness Severity and Predicting Prognosis in Critically Ill Patients. Chin Med J (Engl). 2015;128:2012-8.

47. Kitazawa T, Yoshino Y, Tatsuno K, Ota Y, Yotsuyanagi H. Changes in the mean platelet volume levels after bloodstream infection have prognostic value. Intern Med. 2013;52:1487-93.
48. Gao Y, Li Y, Yu X, Guo S, Ji X, Sun T, et al. The impact of various platelet indices as prognostic markers of septic shock. PLoS One. 2014;9:e103761.
49. Machlus KR, Italiano JE Jr. The incredible journey: From megakaryocyte development to platelet formation. J Cell Biol. 2013;201:785-96.
50. Zimmet J, Ravid K. Polyploidy: occurrence in nature, mechanisms, and significance for the megakaryocyte-platelet system. Exp Hematol. 2000;28:3-16.
51. Kaushansky K. The molecular mechanisms that control thrombopoiesis. J Clin Invest. 2005;115:3339-47.
52. Barnard MR, Krueger LA, Frelinger AL 3rd, Furman MI, Michelson AD. Whole blood analysis of leukocyte-platelet aggregates. Curr Protoc Cytom. 2003;Chapter 6:Unit 6.15.
53. Sikora J, Kostka B. Blood platelets as pharmacological model. Post Biol Kom. 2005;232:561-70.
54. Senchenkova EY, Komoto S, Russell J, Almeida-Paula LD, Yan LS, Zhang S, et al. Interleukin-6 mediates the platelet abnormalities and thrombogenesis associated with experimental colitis. The American journal of pathology. 2013;183:173-81.
55. Schwertz H, Köster S, Kahr WH, Michetti N, Kraemer BF, Weitz DA,et al. Anucleate platelets generate progeny. Blood, The Journal of the American Society of Hematology. 2010;115:3801-9.
56. Kamath S, Blann AD, Lip GY. Platelet activation: assessment and quantification. Eur Heart J. 2001;22:1561-71

57. Abd Elmoneim A, Alhojaili AR, Banjer NR, Zolaly M, Abd El-Moneim ES. Changes in mean platelet volume in critically ill children and its relation to other clinical and laboratory findings. Biomedical Research. 2018; 29:882-8.

58. Saragih RAC, Yanni GN. Association between mean platelet volume to platelet count (MPV platelet) ratio and mortality in critically ill children. Teikyo Medical Journal.2022.45, 6749-53.

59. Srikiatkhachorn A. Plasma leakage in dengue haemorrhagic fever. Thrombosis and haemostasis. 2009; 102:1042-9.

60. Nandwani S, Bhakhri BK, Singh N, Rai R, Singh DK. Early hematological parameters as predictors for outcomes in children with dengue in northern India: a retrospective analysis. Revista da Sociedade Brasileira de Medicina Tropical. 2021; 54.

61. Makwana M, Kumari S, Mourya HK, Mitharwal R, Ram S. A Study to Find out the Relationship between Various Platelet Indices and Morbidity Profile of Dengue Fever in Paediatric Patients on Admission in Western Rajasthan, India. Paediatric Infectious Disease. 2020;2:44.

62. Mukker P, Kiran S. Platelet indices evaluation in patients with dengue fever. Int J Res Med Sci. 2018;6:2054.

63. Sayed SZ, Mahmoud MM, Moness HM, Mousa SO. Admission platelet count and indices as predictors of outcome in children with severe Sepsis: a prospective hospital-based study. BMC paediatrics. 2020;20:1-9.

S no.	MRD No.	Initial	Age (Months)	AGE GROUP	Sex	DENGUE	Weight Actual	Weight expected	Height Actual	Height Expected	Airway	RR	RR Interpretation	Efforts	Air entry	Auscultation	SPO2	SPO2 GP	HR	HR Interpretation	Rhythm	CFT	CFT GP	SBP	DBP
1	1261547	HS	78	3	F	N	24	19.9	124	116.5	Open &Stable	50	Tachypnea	Increased	Differential	Crepts	85	1	126	Tachycardia	Sinus	2	1	90	60
2	1265450	A	12	1	F	N	8	9.8	72	78.6	Open &Stable	60	Tachypnea	Increased	Normal	Normal	98	3	162	Tachycardia	Sinus	3	1	90	54
3	1285543	GS	96	3	M	Y	26	24.8	130	126.4	Open &Stable	82	Tachypnea	Increased	Differential	Crepts	72	1	172	Tachycardia	arrythmia	5	2	80	40
4	1279015	AS	84	3	M	N	17	21	117	12	Open &Stable	36	Tachypnea	Increased	Differential	Crepts	70	1	128	Tachycardia	Sinus	3	1	92	56
5	1281274	SK	72	3	M	N	20	20	110	116	Open &Unstable	36	Tachypnea	Increased	Normal	Normal	90	2	126	Tachycardia	Sinus	2	1	100	70
6	1295433	AS	120	3	F	N	27	32	132	134	Open &Stable	26	Normal	Normal	Normal	Normal	94	2	102	Normal	Sinus	2	1	100	60
7	1296510	ES	132	4	M	N	35	4	145	149	Open &Stable	44	Tachypnea	Increased	Differential	Normal	90	2	120	Tachycardia	Sinus	2	1	100	60
8	1292691	GS	192	4	M	N	45	51	153	159	Open &Stable	30	Tachypnea	Normal	Normal	Normal	94	2	70	Normal	Sinus	3	1	110	70
9	1288157	IK	36	2	F	N	10.1	14	93	95	Open &Stable	52	Tachypnea	Increased	Normal	Normal	90	2	188	Tachycardia	Sinus	5	2	60	40
10	1260733	V	42	2	M	N	18	21.9	118	120	Open &Stable	42	Tachypnea	Increased	Normal	Normal	80	1	120	Tachycardia	Sinus	3	1	110	70
11	1062726	DK	108	3	F	N	32	27.2	140	132	Open &Unstable	Ambu	Bradypnea	Normal	Normal	Normal	98	3	168	Tachycardia	Sinus	4	2	60	40
12	1090436	HK	192	4	M	Y	45	57	165	168	Open &Stable	24	Normal	Poor	Normal	Normal	77	1	98	Normal	Sinus	3	1	94	60
13	1304163	SS	12	1	M	N	9	11	82	85	Open &Stable	38	Normal	Increased	Normal	Normal	92	2	120	Normal	Sinus	4	2	68	42
14	1297828	RK	168	4	F	N	34	47.5	150	155	Open &Stable	20	Normal	Normal	Normal	Normal	98	3	96	Normal	Sinus	3	1	100	60
15	1308856	GS	8	1	M	N	8	9	75	80	Open &Stable	62	Tachypnea	Increased	Normal	Normal	80	1	174	Tachycardia	arrythmia	5	2	90	54
16	1325210	A	108	3	M	N	25	29	134	135	Open &Unstable	Ambu	Bradypnea	Poor	Poor	Crepts	35	1	30	Arrest	Asystole	5	2	UR	UR
17	1325330	Y	42	2	M	N	15	15.5	95	99.5	Open &Stable	34	Normal	Normal	Normal	Normal	93	2	120	Normal	Sinus	2	1	80	60
18	1334446	JK	54	2	F	N	18	16	106	4	Open &Stable	36	Tachypnea	Increased	Poor	Crepts	92	2	128	Normal	Sinus	2	1	90	50
19	1343822	IK	84	3	F	Y	15.8	19.9	102	116.5	Open &Stable	36	Tachypnea	Increased	Normal	Normal	99	3	114	Tachycardia	Sinus	3	1	70	40
20	1356708	G	60	2	F	N	20	19	124	110	Open &Stable	24	Normal	Normal	Normal	Stridor	97	3	132	Tachycardia	Sinus	2	1	120	80
21	1356631	A	42	2	M	N	23	15.5	98	99.5	Open &Stable	60	Tachypnea	Increased	Differential	Crepts	84	1	164	Tachycardia	Sinus	3	1	100	56
22	1355766	S	12	1	F	N	8	9	72	75	Open &Stable	50	Tachypnea	Increased	Normal	Crepts	90	2	150	Normal	Sinus	2	1	90	60
23	1355143	G	36	2	M	Y	12	14	90	96	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	92	2	164	Tachycardia	Sinus	4	2	70	42
24	1354455	R	36	2	M	N	12	15	95	97	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Crepts	90	2	138	Normal	Sinus	4	2	90	60
25	1334446	JK	48	2	F	N	12	16.4	100	104	Open &Stable	36	Tachypnea	Increased	Poor	Crepts	88	1	128	Normal	Sinus	3	1	90	50
26	1351523	D	36	2	F	N	15	14.8	100	98	Open &Stable	30	Normal	Normal	Normal	Stridor	98	3	128	Normal	Sinus	2	1	90	60
27	1346996	LA	144	4	F	N	32	39	142	148	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Normal	95	2	104	Normal	Sinus	3	1	95	60
28	1349302	JM	84	3	M	N	18.6	22.5	117	123	Open &Stable	32	Tachypnea	Increased	Differential	Normal	97	3	140	Tachycardia	Sinus	3	1	94	60
29	1345001	AM	132	4	M	Y	60	47	160	145	Open &Stable	44	Tachypnea	Increased	Normal	Normal	97	3	120	Tachycardia	Sinus	3	1	120	70
30	1343925	R	96	3	M	N	15	23	120	124	Open &Stable	28	Tachypnea	Increased	Normal	Normal	98	3	83	Normal	Sinus	2	1	80	50
31	1349302	JM	84	3	M	N	18.6	22.5	117	123	Open &Stable	32	Tachypnea	Increased	Differential	Normal	97	3	140	Tachycardia	Sinus	3	1	94	60
32	13469965	LA	144	4	F	N	32	39	142	148	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Normal	95	2	104	Normal	Sinus	3	1	95	60
33	1351523	DM	36	2	F	N	12	13.5	90	95	Open &Stable	30	Normal	Normal	Normal	Normal	95	2	104	Normal	Sinus	2	1	94	52
34	1354454	R	36	2	M	N	12	15	95	97	Open &Unstable	Ambu	Apnea	Poor	Normal	Crepts	90	2	138	Normal	Sinus	4	2	90	60
35	13551433	G	36	2	M	Y	12	14	90	96	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	92	2	164	Tachycardia	Sinus	4	2	70	42
36	1355749	B	192	4	F	N	60	50	164	158	Open &Stable	52	Tachypnea	Increased	Differential	Crepts	88	1	145	Tachycardia	Sinus	5	2	84	48
37	1355766	SS	12	1	F	N	8	9	72	74	Open &Stable	62	Tachypnea	Increased	Normal	Normal	90	2	150	Normal	Sinus	3	1	90	46
38	1356631	A	36	2	M	Y	13	14	95	96	Open &Stable	72	Tachypnea	Increased	Poor	Crepts	85	1	178	Tachycardia	Sinus	4	2	UR	UR
39	1205478	SB	180	4	M	Y	60	55	170	165	Open &Stable	30	Tachypnea	Increased	Poor	Crepts	90	2	142	Tachycardia	Sinus	4	2	100	70
40	1208351	DS	132	4	M	Y	45	38	150	146	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	80	1	154	Tachycardia	Sinus	5	2	90	70
41	1209002	A	12	1	M	Y	10	9	80	76	Open &Stable	70	Tachypnea	Increased	Differential	Crepts	84	1	178	Tachycardia	Sinus	4	2	UR	UR
42	1209624	VK	192	4	M	N	48	57	168	168	Open &Stable	20	Normal	Normal	Normal	Normal	95	2	80	Normal	Sinus	2	1	140	70
43	1210109	HS	120	3	M	Y	40	34	152	142	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	86	1	154	Tachycardia	Sinus	5	2	UR	UR
44	1210120	DS	24	2	M	N	10	11	85	87	Open &Stable	70	Tachypnea	Increased	Normal	Crepts	90	2	120	Normal	Sinus	2	1	90	54
45	1211251	L	120	3	F	Y	30	35	142	140	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	88	1	148	Tachycardia	Sinus	4	2	90	70
46	1213849	JS	72	3	M	N	18	20	115	118	Open &Stable	48	Tachypnea	Increased	Normal	Crepts	80	1	160	Tachycardia	Sinus	5	2	UR	UR
47	1214527	RM	156	4	M	Y	40	45	150	157	Open &Stable	26	Tachypnea	Normal	Normal	Normal	95	2	120	Tachycardia	Sinus	5	2	110	70
48	1207433	RJ	12	1	M	N	12	11	84	86	Open &Stable	58	Tachypnea	Increased	Differential	Crepts	90	2	150	Tachycardia	Sinus	3	1	98	50
49	1216057	HK	180	4	F	N	40	49	160	158	Open &Unstable	Ambu	Apnea	Poor	Poor	Crepts	88	1	150	Tachycardia	Sinus	5	2	UR	UR
50	1216844	JS	24	2	M	N	12	11	88	87	Open &Stable	20	Tachypnea	Increased	Differential	Crepts	80	1	170	Tachycardia	arrythmia	5	2	70	40
51	1219014	E	120	3	M	N	30	34	140	142	Open &Stable	28	Normal	Normal	Normal	Normal	95	2	118	Normal	Sinus	3	1	110	70
52	1220841	AM	168	4	M	N	50	50	165	164	Open &Stable	34	Tachypnea	Increased	Differential	Crepts	90	2	120	Tachycardia	Sinus	5	2	104	70

S no.	MRD No.	BP Interpretation	CP	PP	Skin Temperature	E	V	M	GCS	GCS GP	Pupil	RL	Temperature	TEMP GP	Colour	Primary System	Oxygen	Ventilation	Invasive /Non invasive	NIV/HFNC	Inotropes	Fluid Bolus	Ph	ph gp	pco2	Po2	HCO3	BE
1	1261547	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	102.7	3	Normal	GIT	Yes	No	NA	HFNC	No	No	7.3	1	30	48	24	-0.8
2	1265450	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Pallor	Hepatic	Yes	No	NA	NA	No	No	7.29	1	18	67	12.6	-17.6
3	1285543	Hypotension	Poor	Poor	Cool	4	4	6	14	3	2mm	RL	98.8	1	Petechie	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	20	25	5.4	-20
4	1279015	Hypotension	Good	Poor	Warm	4	5	6	15	3	2mm	RL	101	2	Normal	Infectious	Yes	Yes	Invasive	NIV	No	Yes	7.46	3	35	170	25.9	1.4
5	1281274	Normal	Good	Poor	Cool	4	1	5	10	2	2mm	RL	98	1	Pallor	GIT	Yes	Yes	Invasive	NA	No	Yes	7.37	2	47	81	27.2	1.9
6	1295433	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	99	1	Pallor	CNS	Yes	Yes	Invasive	NA	Yes	Yes	7.4	2	42	46	25.4	1.2
7	1296510	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	99	1	Pallor	GIT	Yes	Yes	Non Inavsive	NIV	No	No	7.37	2	34	23	20.3	-5.6
8	1292691	Normal	Good	Good	Warm	4	4	6	14	3	2mm	RL	98	1	Rash	CNS	No	No	NA	NA	No	No	7.3	1	36	58	27.4	1.2
9	1288157	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	100.4	2	Rash	CVS	Yes	No	NA	NA	No	Yes	7.1	1	29	52	20.4	-4.6
10	1260733	Normal	Good	Good	Warm	3	5	5	13	3	2mm	RL	97	1	Burns	Other	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	20	58	14.6	-18
11	1062726	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	97.2	1	Rash	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.3	1	22	72	14	-15.6
12	1090436	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	98	1	Normal	Respiratory	Yes	Yes	Invasive	NA	Yes	Yes	7.2	1	48	58	22	-4
13	1304163	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	99	1	Pallor	Infectious	Yes	No	NA	NA	No	Yes	7.3	1	45	84	18	-3.4
14	1297828	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Icterus	Hepatic	No	No	NA	NA	No	No	7.4	2	32	82	27	1.2
15	1308856	Normal	Good	Poor	Cool	2	4	4	10	2	2mm	RL	98	1	Normal	Endocrinology	Yes	Yes	Invasive	NA	No	Yes	7.1	1	50	52	15.4	-4.2
16	1325210	Hypotension	Poor	Poor	Cool	1	0	1	2	1	Dilated	Fixed	96	1	Pallor	CNS	Yes	Yes	Invasive	NA	Yes	Yes	6.8	1	58	28	-	-
17	1325330	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	99	1	Pallor	CNS	Yes	No	NA	NA	No	No	7.3	1	22	72	24	4.6
18	1334446	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Pallor	Respiratory	Yes	Yes	Invasive	HFNC	No	No	7.2	1	34	68	22	-2
19	1343822	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	95.6	1	Pallor	Infectious	Yes	No	Non Inavsive	HFNC	Yes	Yes	7.42	2	34	58	23.2	-2.4
20	1356708	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.46	3	34	32	24.9	0.4
21	1356631	Normal	Good	Good	Warm	4	3	6	13	3	2mm	RL	97.6	1	Pallor	Respiratory	Yes	Yes	Invasive	NA	No	No	7.3	1	28	78	22	3.6
22	1355766	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	102	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.54	3	27	183	25.8	0.6
23	1355143	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	96	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.29	1	26	54	18.2	-8.5
24	1354455	Normal	Good	Good	Cool	1	0	1	2	1	2mm	RL	93	1	Petechie	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	24	28	8.6	-18
25	1334446	Normal	Good	Good	Warm	2	3	5	10	2	2mm	RL	97	1	Pallor	Respiratory	Yes	No	Non Inavsive	NIV	No	No	7.2	1	28	54	17.4	-4.8
26	1351523	Normal	Good	Good	Warm	2	2	5	9	2	2mm	RL	98	1	Pallor	CNS	No	No	NA	NA	No	No	7.3	1	37	30	20.3	-5.2
27	1346996	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	98	1	Abrasion	CNS	Yes	Yes	Invasive	NA	No	No	7.54	3	37	128	31.6	9.1
28	1349302	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Pallor	GIT	Yes	No	NA	NA	No	No	7.3	1	34	120	27	-0.4
29	1345001	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Pallor	MODS	Yes	Yes	Invasive	NIV	Yes	Yes	7.56	3	28	95	27	2.9
30	1343925	Normal	Good	Poor	Cool	4	5	6	15	3	2mm	RL	99	1	Pallor	GIT	Yes	No	NA	NA	No	Yes	7.3	1	32	94	24	3.4
31	1349302	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	GIT	Yes	No	NA	NA	No	No	7.4	2	32	88	26	1.2
32	13469965	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	98	1	Abrasion	CNS	Yes	Yes	Invasive	NA	No	No	7.54	3	37	128	31.6	9.1
33	1351523	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	100	2	Normal	CNS	No	No	NA	NA	No	No	7.29	1	26	54	18.2	-8.5
34	1354454	Normal	Good	Good	Cool	1	0	1	2	1	2mm	RL	93	1	Petechie	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	24	28	8.6	-18
35	13551433	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	96	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.29	1	26	54	18.2	-8.5
36	1355749	Hypotension	Good	Poor	Cool	3	2	5	10	2	2mm	RL	96	1	Petechie	MODS	Yes	Yes	Invasive	NIV	Yes	Yes	7.1	1	24	28	8.6	-18
37	1355766	Normal	Good	Good	Warm	4	3	6	13	3	2mm	RL	101	2	Normal	Infectious	Yes	Yes	Invasive	NA	No	No	7.4	2	32	58	28	2.1
38	1356631	Hypotension	Good	Poor	Cool	2	2	4	8	1	2mm	RL	96	1	Petechie	MODS	Yes	Yes	Invasive	NIV	Yes	Yes	6.8	1	24	28	4.5	-18.4
39	1205478	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	96	1	Petechie	Infectious	Yes	No	NA	NA	Yes	Yes	7.24	1	40	58	20.4	-8.8
40	1208351	Hypotension	Good	Poor	Cool	3	2	4	9	2	2mm	RL	95	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.22	1	36	60	15.3	-13
41	1209002	Hypotension	Poor	Poor	Cool	2	2	2	6	1	2mm	RL	93	1	ecchymosis	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	6.8	1	60	28	0	0
42	1209624	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	95	1	Normal	Renal	No	No	NA	NA	No	No	7.21	1	30	50	21	-8
43	1210109	Hypotension	Good	Poor	Cool	2	3	4	9	2	2mm	RL	94	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	6.94	1	23	57	4.8	-27.4
44	1210120	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	erythmatous	MODS	Yes	No	NA	NA	No	No	7.3	1	34	88	22	-4.2
45	1211251	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	96	1	Petechie	Infectious	Yes	Yes	Invasive	NIV	Yes	Yes	7.1	1	24	28	8.6	-18
46	1213849	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	101	2	Pallor	GIT	Yes	Yes	Invasive	NA	Yes	Yes	6.9	1	23	57	4.8	-27.1
47	1214527	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	erythmatous	Infectious	Yes	No	NA	NA	No	Yes	7.23	1	28	56	24.3	-4.5
48	1207433	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	102	2	Normal	Infectious	Yes	Yes	Invasive	HFNC	Yes	Yes	7.01	1	25	27	5.4	-20
49	1216057	Hypotension	Poor	Poor	Cool	2	0	2	4	1	2mm	RL	95	1	Pallor	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	6.8	1	48	27	4.8	-27.4
50	1216844	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	97	1	Pallor	CNS	No	No	NA	NA	No	Yes	7.01	1	28	40	7.8	-18
51	1219014	Normal	Good	Good	Warm	3	4	5	12	2	2mm	RL	98	1	Normal	Surgical	Yes	Yes	Invasive	NA	No	No	7.41	2	39	29	24.3	0.1
52	1220841	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	erythmatous	MODS	Yes	Yes	NA	NA	Yes	Yes	7.4	2	34	29	24	1

S no.	MRD No.	Lac	lactate gp	Hb (D1)	Hb (D3)	Hb (D7)	MPV/ PLT 1	MPV/ PLT 2	MPV/ PLT 3	plt	Platelet (D1)	Platelet (D3)	Platelet(d7)	Diff Platelet (D3)	Diff Platelet (d7)	Diff Platelet (D3-d7)	MPV (D1)	MPV (D3)	MPV (D7)	Diff MPV (D3)	Diff MPV (D7)	Diff MPV (D3-D7)	MPV	MPV GROUP	AB MPV	TLC (D1)	RDW (D1)	RDW (D3)	RDW (D7)	Na	K	BU
1	1261547	2	2	9.3	9.4	-	0.17	0.14	-	2.00	56	84	-	28	-	-	9.7	11.4	-	1.7	-	-	2	2	-	7.1	14.8	15.8	-	137	3.76	17
2	1265450	12.9	2	6	4.2	6.1	1.45	0.29	0.36	1.00	6	32	30	26	24	-2	8.7	9.3	10.8	0.6	2.1	1.5	2	2	2	2.7	16.3	16.6	16.5	143	2.45	47
3	1285543	14	2	12.8	-	-	1.50	-	-	1.00	9	-	-	-	-	-	13.5	-	-	-	-	-	3	3	-	20.6	16.8	-	-	143	4.12	84
4	1279015	1.2	1	9.7	8.9	9	0.18	0.09	0.03	2.00	50	124	365	74	315	241	8.8	11.4	10.2	2.6	1.4	-1.2	2	2	2	28.8	20.5	20.9	17.8	138	4.02	134
5	1281274	1.8	1	9	9.2	8.8	0.27	0.21	0.11	1.00	42	49	102	7	60	53	11.3	10.4	11.5	-0.9	0.2	1.1	2	2	2	2.7	15.1	15.4	15.8	131	4.6	62
6	1295433	1.4	1	11.4	10.1	10.3	0.11	0.12	0.07	3.00	110	120	157	10	47	37	12.3	14.3	11.2	2	-1.1	-3.1	3	3	2	14.8	14.2	14.5	13.5	144	4.6	16
7	1296510	1.4	1	6.5	5.2	7.2	0.08	0.08	0.04	3.00	150	156	245	6	95	89	12.1	11.7	9.3	-0.4	-2.8	-2.4	3	3	2	10.4	13.3	14.8	16	140	3.2	10
8	1292691	0.8	1	7.9	6.6	-	0.13	0.11	-	2.00	74	87	-	13	-	-	9.8	9.8	-	0	-	-	2	2	-	2.8	17.6	18	-	144	4.34	11
9	1288157	3.8	2	8.7	10.7	11	0.44	0.45	0.06	1.00	22	24	149	2	127	125	9.6	10.7	8.9	1.1	-0.7	-1.8	2	2	2	31.3	17.4	16.9	15.9	129	5.38	163
10	1260733	10	2	3.4	16.7	9.9	0.06	0.04	0.04	3.00	115	224	198	109	83	-26	7	8.8	8.3	1.8	1.3	-0.5	1	2	2	8.2	16.3	20	20	144	5.02	52
11	1062726	6.1	2	13.9	9.3	9.6	0.08	0.17	0.02	3.00	120	70	442	-50	322	372	10	11.7	10	1.7	0	-1.7	2	3	2	7.7	15.3	15.9	14.9	142	3.7	92
12	1090436	6	2	9.7	9.2	9.4	0.23	0.27	0.05	1.00	40	42	262	2	222	220	9	11.5	12	2.5	3	0.5	2	2	3	13.6	17.8	19.5	17.6	143	4.36	109
13	1304163	6	2	10	8	10.2	0.17	0.40	0.24	2.00	53	22	41	-31	-12	19	9.1	8.7	9.8	-0.4	0.7	1.1	2	2	2	18.4	29.6	28.4	27.2	141	7.41	86
14	1297828	6	2	4.5	10.7	-	0.10	0.07	-	3.00	106	132	-	26	-	-	10.1	9.7	-	-0.4	-	-	2	2	-	3	20.9	20.8	-	141	3.62	11
15	1308856	8.9	2	8.6	9.6	7	0.08	0.33	0.95	3.00	130	30	10	-100	-120	-20	9.8	9.8	9.5	0	-0.3	-0.3	2	2	2	12.1	21.9	22	23.4	150	2.5	50
16	1325210	12	2	8.3	11.1	-	0.10	0.05	-	2.00	90	152	-	62	-	-	9	8.3	-	-0.7	-	-	2	2	-	20.3	15.3	15.1	-	136	4.33	28
17	1325330	3	2	8.1	8.1	6.4	0.08	0.06	0.05	3.00	110	148	176	38	66	28	8.7	9.5	8.6	0.8	-0.1	-0.9	2	2	2	8.6	19.4	20.3	18.1	153	2.39	21
18	1334446	2	2	9.6	9.1	8.9	0.11	0.11	0.01	2.00	90	80	709	-10	619	629	10	8.6	9.9	-1.4	-0.1	1.3	2	2	2	7.3	15.5	15.1	13.3	140	5	29
19	1343822	3.5	2	10.3	7.9	9	0.35	0.38	0.02	1.00	30	41	485	11	455	444	10.4	15.4	9.2	5	-1.2	-6.2	2	3	2	13.1	13.6	12.8	13.2	136	3.92	35
20	1356708	1.2	1	8	-	-	0.08	-	-	3.00	136	-	-	-	-	-	11	-	-	-	-	-	2	3	-	1.1	16.3	-	-	141	4.51	29
21	1356631	4	2	9.3	-	-	0.13	-	-	2.00	90	-	-	-	-	-	11.9	-	-	-	-	-	3	3	-	10.12	15.9	-	-	140	3.09	18
22	1355766	1.7	1	8.4	-	-	0.08	-	-	3.00	138	-	-	-	-	-	11.3	-	-	-	-	-	2	3	-	18.1	24.4	-	-	138	2.67	18
23	1355143	3.2	2	10.5	8.2	-	0.05	0.14	-	3.00	140	72	-	-68	-	-	7.5	10.3	-	2.8	-	-	2	2	-	4.4	16.9	17.3	-	130	5.33	50
24	1354455	5.6	2	10.4	-	-	0.10	-	-	3.00	104	-	-	-	-	-	10.6	-	-	-	-	-	2	3	-	7.7	19.9	-	-	173	2.89	99
25	1334446	6.4	2	10.8	9.9	8.9	0.09	0.11	0.01	2.00	100	86	709	-14	609	623	9.3	9.8	9.9	0.5	0.6	0.1	2	2	2	9.3	15	15.2	13.3	142	5.02	41
26	1351523	3.4	2	11.1	9.9	9.4	0.06	0.07	0.07	3.00	150	152	180	2	30	28	8.8	10.1	12.2	1.3	3.4	2.1	2	2	3	7.64	14.8	15.5	15.1	139	4.18	17
27	1346996	0.8	1	11.7	11.1	11.6	0.06	0.07	0.02	3.00	144	156	370	12	226	214	9	10.3	8.9	1.3	-0.1	-1.4	2	2	2	4	15.1	14.1	14.4	145	3.68	16
28	1349302	1	1	9.8	7.9	8.1	0.09	0.12	0.04	2.00	90	92	247	2	157	155	8	10.9	9.5	2.9	1.5	-1.4	2	2	2	4.76	15.4	16.2	16.3	134	4.8	28
29	1345001	0.7	1	6.9	6.3	6.4	0.26	0.36	0.13	1.00	32	26	96	-6	64	70	8.2	9.4	12.6	1.2	4.4	3.2	2	2	3	14.41	16.1	17.6	17.1	121	5.19	251
30	1343925	1.2	1	8.6	8.2	5.7	0.06	0.07	0.06	3.00	150	148	140	-2	-10	-8	9	11	8.9	2	-0.1	-2.1	2	2	2	14.42	27.1	27.1	24	144	2.23	16
31	1349302	0.8	1	9.4	7.9	8.1	0.12	0.12	0.04	2.00	80	92	247	12	167	155	9.6	10.9	9.5	1.3	-0.1	-1.4	2	2	2	4.6	16.1	16.2	16.3	135	4.14	23
32	13469965	0.8	1	11.7	11.1	11.6	0.07	0.07	0.02	3.00	144	156	370	12	226	214	10.4	10.3	8.9	-0.1	-1.5	-1.4	2	2	2	4	15.1	14.1	14.4	145	3.68	16
33	1351523	3.2	2	11.1	9.9	9.4	0.08	0.09	0.07	3.00	150	152	180	2	30	28	11.9	13.1	12.2	1.2	0.3	-0.9	3	3	3	7.64	14.8	15.5	15.1	139	4.15	17
34	1354454	5.6	2	10.4	-	-	0.10	-	-	3.00	104	-	-	-	-	-	10.6	-	-	-	-	-	2	3	-	7.7	19.9	-	-	173	2.89	99
35	13551433	3.2	2	10.5	8.2	-	0.08	0.13	-	3.00	140	72	-	-68	-	-	11.1	9.3	-	-1.8	-	-	2	2	-	4.4	16.9	17.3	-	130	5.33	50
36	1355749	5.6	2	9.7	10.3	8	0.08	0.12	0.27	3.00	130	88	56	-42	-74	-32	10.8	10.2	15.1	-0.6	4.3	4.9	2	2	3	8.3	18.1	16.8	17.9	148	3.82	18
37	1355766	0.8	1	8.4	8.3	8.7	0.08	0.08	0.03	3.00	138	163	404	25	266	241	11.3	13.2	13.5	1.9	2.2	0.3	2	3	3	18.1	24.4	25	24.8	138	2.67	18
38	1356631	12	2	9.3	7.7	-	0.12	0.19	-	2.00	90	72	-	-18	-	-	10.9	13.9	-	3	-	-	2	3	-	10.12	15.9	17.1	-	140	3.09	18
39	1205478	4	2	5.4	10	9	0.07	0.13	0.08	3.00	110	92	150	-18	40	58	8	11.7	12	3.7	4	0.3	2	3	3	1.7	15.2	18.7	19.2	141	4.28	59
40	1208351	8	2	10.7	8.9	12.9	0.31	0.06	0.08	1.00	32	184	130	152	98	-54	9.8	11.5	10.4	1.7	0.6	-1.1	2	2	2	27.1	15.5	17.2	18.3	137	5.04	120
41	1209002	10	2	13.2	-	-	0.79	-	-	1.00	14	-	-	-	-	-	11	-	-	-	-	-	2	3	-	7.2	18.3	-	-	127	5.44	98
42	1209624	3	2	11.2	11.6	9.7	0.05	0.07	0.06	3.00	146	137	137	-9	-9	0	7.9	9.9	8.8	2	0.9	-1.1	2	2	2	6.3	16.4	16.2	17.8	134	7.52	350
43	1210109	8.4	2	8.1	-	-	0.31	-	-	1.00	35	-	-	-	-	-	10.9	-	-	-	-	-	2	3	-	3.5	16.4	-	-	144	4.53	27
44	1210120	2	2	8.9	8	9.4	0.08	0.11	0.03	3.00	111	97	271	-14	160	174	8.9	10.3	9.4	1.4	0.5	-0.9	2	2	2	20.5	15.3	15.5	15.1	144	4.03	17
45	1211251	5.6	2	16.4	9.8	-	0.42	0.17	-	1.00	22	54	-	32	-	-	9.3	9.4	-	0.1	-	-	2	2	-	17.8	16.1	16.5	-	130	5.72	20
46	1213849	7.4	2	8.6	9.7	-	0.45	0.91	-	1.00	19	10	-	-9	-	-	8.6	9.1	-	0.5	-	-	2	2	-	1	15.3	19.7	-	126	4.25	23
47	1214527	3.2	2	15.4	13.1	-	0.43	0.23	-	1.00	21	50	-	29	-	-	9.1	11.5	-	2.4	-	-	2	2	-	4	15.3	15.6	-	141	4.19	34
48	1207433	10	2	4.5	9.4	7.5	0.28	0.17	0.09	1.00	36	70	100	34	64	30	9.9	12.2	9	2.3	-0.9	-3.2	2	3	2	1	16.4	16.8	18.2	139	4.59	12
49	1216057	12	2	11.7	-	-	0.09	-	-	3.00	132	-	-	-	-	-	12.3	-	-	-	-	-	3	3	-	6.4	17.6	-	-	136	4.98	236
50	1216844	4	2	10.4	7.8	8.2	0.08	0.14	0.08	3.00	105	62	106	-43	1	44	8.5	8.7	8.7	0.2	0.2	0	2	2	2	9.9	27.3	36.1	37.6	115	2.44	82
51	1219014	1	1	11.1	5.6	9.3	0.07	0.08	0.07	3.00	150	140	142	-10	-8	2	10.1	11.6	9.9	1.5	-0.2	-1.7	2	2	2	10.1	15.8	14.7	15.6	144	3.48	55
52	1220841	2	2	11.9	11.4	10.4	0.09	0.03	0.04	3.00	150	282	276	132	126	-6	12.9	9.8	11.4	-3.1	-1.5	1.6	3	2	2	22.4	16.9	17.7	16.7	130	4.54	110

S no.	MRD No.	Creat	LDH	SGOT	SGPT	CRP	crp gp	Covid Ab	BLOOD CULTURE	URINE CULTURE	BAL CULTURE	RBS	Blood Product Transfusion	PRISM	PRISM GP	Duration Of Stay	Duration Of Stay GP	Outcome
1	1261547	0.26	-	54	28	74.9	2	382	No growth	No growth	No growth	154	NOT DONE	7	1	4	2	Shifted
2	1265450	0.49	954	142	52	17	2	0.8	Acinetobacter Baumanni	No growth	No growth	86	PRBC ,RDP,FFP	2	1	4	2	Shifted
3	1285543	2.7	-	202	78	133.37	2	128	No growth	No growth	No growth	31	PRBC , RDP FFP	19	2	2	1	Expired
4	1279015	0.71	-	128	47	249	2	42	MRSA	No growth	MRSA	25	PRBC	5	1	10	3	Shifted
5	1281274	0.54	-	542	240	301	2	-	No growth	No growth	E.Coli	30	FFP	13	2	17	4	Shifted
6	1295433	0.35	-	28	74	0.23	1	-	No growth	No growth	Pseudomonas Aeruginosa	86	NOT DONE	9	1	6	2	Shifted
7	1296510	0.5	-	-	-	137	2	-	No growth	No growth	No growth	118	PRBC	5	1	5	2	Shifted
8	1292691	0.79	-	48	24	0.56	1	-	No growth	No growth	No growth	90	NOT DONE	8	1	4	2	Shifted
9	1288157	2.39	-	108	114	381.04	2	14	No growth	No growth	No growth	48	PRBC ,RDP,FFP	16	2	6	2	Shifted
10	1260733	0.77	-	58	20	295.3	2	2500	No growth	No growth	Klebsiella Aeruginosa	134	PRBC,RDP	8	1	68	4	Shifted
11	1062726	1.82	-	-	-	133.3	2	-	No growth	No growth	No growth	163	NOT DONE	15	2	8	3	Shifted
12	1090436	2.06	-	480	272	271.73	2	-	No growth	No growth	No growth	40	PRBC	13	2	8	3	Shifted
13	1304163	0.72	-	742	118	33	2	28	Sphingomonas paucimobilis	No growth	No growth	44	RDP	14	2	6	2	Shifted
14	1297828	0.37	-	240	158	2	1	-	Achromobacter xylosoxidans	No growth	No growth	90	PRBC	3	1	3	2	Shifted
15	1308856	0.94	-	24	11	3.46	1	-	No growth	No growth	No growth	80	RDP	21	2	10	3	Shifted
16	1325210	0.76	-	48	28	0.2	1	-	No growth	No growth	No growth	20	NOT DONE	30	2	4	2	Expired
17	1325330	0.43	-	52	32	225.83	2	-	MRSA	No growth	No growth	42	PRBC	12	2	8	3	Shifted
18	1334446	0.35	-	104	78	88.41	2	-	No growth	No growth	No growth	58	NOT DONE	36	2	17	4	Expired
19	1343822	0.37	-	118	82	209.5	2	19.26	No growth	No growth	No growth	71	RDP	6	1	6	2	Shifted
20	1356708	0.35	-	520	464	358.58	2	-	No growth	No growth	No growth	97	NOT DONE	36	2	3	2	Expired
21	1356631	0.2	-	248	235	117.83	2	2500	No growth	No growth	No growth	110	NOT DONE	34	2	1	1	Expired
22	1355766	0.14	-	24	12	166.16	2	-	No growth	No growth	No growth	54	PRBC,FFP	36	2	1	1	Expired
23	1355143	0.69	843	118	86	203.64	2	0.4	No growth	No growth	No growth	20	PRBC,FFP,RDP	31	2	3	2	Expired
24	1354455	0.97	-	354	254	28.25	2	-	No growth	No growth	No growth	26	FFP	27	2	1	1	Expired
25	1334446	0.49	-	142	132	88.41	2	8.1	No growth	No growth	No growth	48	PRBC,FFP,RDP,CRYO	26	2	18	4	Expired
26	1351523	0.32	-	50	28	25.62	2	-	No growth	No growth	No growth	140	NOT DONE	7	1	4	2	Shifted
27	1346996	0.34	-	78	60	18	2	-	Enterobacter Cloacae	No growth	Klebsiella Aeruginosa	89	NOT DONE	5	1	7	2	Shifted
28	1349302	0.23	450	405	284	241.35	2	-	Salmonella typhi	No growth	No growth	110	NOT DONE	9	1	6	2	Shifted
29	1345001	4.33	2650	354	61	337.27	2	2500	No growth	Candida tropicalis	No growth	66	PRBC,FFP,RDP,CRYO	27	2	24	4	Shifted
30	1343925	0.49	-	227	-	124	2	-	No growth	No growth	No growth	90	PRBC	16	2	10	3	Shifted
31	1349302	0.28	-	131	80	208	2	580	Salmonella typhi	No growth	No growth	84	NOT DONE	11	2	6	2	Shifted
32	13469965	0.34	-	-	-	18	2	-	Enterobacter Cloacae	No growth	Klebsiella Aeruginosa	89	NOT DONE	5	1	7	2	Shifted
33	1351523	0.32	-	32	16	25.62	2	-	No growth	No growth	No growth	92	NOT DONE	10	1	4	2	Shifted
34	1354454	0.97	-	-	-	28.25	2	-	No growth	No growth	No growth	26	FFP	27	2	1	1	DAMA
35	13551433	0.69	843	-	-	203.64	2	0.4	No growth	No growth	No growth	20	PRBC,FFP,RDP	31	2	3	2	Expired
36	1355749	0.82	1254	515	1193	21	2	-	No growth	candida stellatoides	No growth	24	PRBC,FFP,RDP	29	2	22	4	Shifted
37	1355766	0.14	-	35	57	166.16	2	-	MRSA	No growth	No growth	84	RDP	12	2	7	2	Shifted
38	1356631	0.2	926	236	139	117.33	2	2500	No growth	No growth	No growth	24	PRBC,RDP,FFP	28	2	2	1	Expired
39	1205478	0.68	-	366	875	1.1	1	-	No growth	No growth	No growth	108	PRBC,FFP,RDP	7	1	8	3	Shifted
40	1208351	4.03	-	7957	3941	140	2	-	No growth	No growth	No growth	50	PRBC,FFP,RDP,CRYO	30	2	4	2	Expired
41	1209002	1.5	-	-	-	-	2	-	No growth	No growth	No growth	20	PRBC,FFP,RDP	40	2	1	1	Expired
42	1209624	9.29	-	32	8	8.81	2	-	No growth	No growth	No growth	90	NOT DONE	12	2	7	2	Shifted
43	1210109	0.45	-	124	86	1.78	1	-	No growth	No growth	No growth	30	PRBC,FFP,RDP	35	2	2	1	Expired
44	1210120	0.17	-	1523	2000	53.53	2	2000	No growth	No growth	No growth	90	NOT DONE	10	1	4	2	Shifted
45	1211251	0.45	-	5130	1186	5.98	1	-	No growth	No growth	No growth	250	PRBC,FFP,RDP,CRYO	18	2	3	2	Expired
46	1213849	0.13	1540	85	31	240	2	-	No growth	No growth	No growth	24	PRBC,FFP,RDP,CRYO	30	2	3	2	Expired
47	1214527	0.62	-	183	95	3.02	1	-	No growth	No growth	No growth	100	RDP	4	1	4	2	Shifted
48	1207433	0.09	-	-	-	199.47	2	-	No growth	E.Coli	No growth	100	PRBC,RDP	18	2	6	2	Expired
49	1216057	8.18	-	251	289	30.95	2	-	No growth	No growth	No growth	20	PRBC,FFP	41	2	1	1	Expired
50	1216844	1.95	-	123	28	52.02	2	-	No growth	No growth	No growth	100	PRBC	22	2	19	4	DAMA
51	1219014	0.48	-	-	-	136.58	2	-	No growth	No growth	Pseudomonas Aeruginosa	180	PRBC	12	2	16	4	Shifted
52	1220841	1.11	1250	47	36	270.12	2	1139	No growth	No growth	No growth	100	NOT DONE	6	1	7	2	Shifted

S no.	MRD No.	Initial	Age (Months)	AGE GROUP	Sex	DENGUE	Weight Actual	Weight expected	Height Actual	Height Expected	Airway	RR	RR Interpretation	Efforts	Air entry	Auscultation	SPO2	SPO2 GP	HR	HR Interpretation	Rhythm	CFT	CFT GP	SBP	DBP
53	1220905	RS	24	2	M	Y	15	12	90	87	Open &Stable	50	Tachypnea	Increased	Differential	Crepts	80	1	170	Tachycardia	Sinus	4	2	UR	UR
54	1221414	KM	24	2	F	N	9	11	80	85	Open &Stable	68	Tachypnea	Acidotic	Normal	Normal	92	2	168	Tachycardia	Sinus	3	1	70	30
55	1221464	K	24	2	M	N	10	12	85	87	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Normal	95	2	160	Tachycardia	Sinus	2	1	70	40
56	1221470	M	168	4	F	N	40	50	148	156	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	85	1	160	Tachycardia	Sinus	2	1	90	50
57	10733114	NK	12	1	F	N	8	9	72	75	Open &Unstable	Ambu	Tachypnea	Increased	Normal	Crepts	80	1	168	Tachycardia	Sinus	4	2	UR	UR
58	1224713	MK	180	4	M	N	60	50	170	168	Open &Stable	20	Normal	Normal	Normal	Normal	95	2	110	Normal	Sinus	2	1	120	80
59	1225116	OS	132	4	M	N	35	38	145	147	Open &Unstable	Ambu	Bradypnea	Poor	Differential	Crepts	92	2	130	Tachycardia	Sinus	3	1	80	40
60	1226404	V	12	1	M	N	10	12	84	87	Open &Stable	78	Tachypnea	Increased	Normal	Crepts	88	1	150	Normal	Sinus	2	1	90	40
61	1226493	ZS	1	1	M	N	3.5	4	50	54	Open &Stable	80	Tachypnea	Increased	Normal	Crepts	88	1	154	Normal	Sinus	2	1	90	50
62	1226970	R	168	4	M	Y	40	48	160	164	Open &Stable	26	Normal	Normal	Differential	Normal	93	2	124	Tachycardia	Sinus	2	1	104	74
63	1227055	K	192	4	F	N	40	50	154	160	Open &Unstable	Ambu	Apnea	Poor	Poor	Crepts	90	2	154	Tachycardia	Sinus	3	1	90	50
64	1230915	JK	2	1	F	N	4	5	55	54	Open &Unstable	Ambu	Bradypnea	Poor	Poor	ronchi	90	2	178	Tachycardia	Sinus	4	2	UR	UR
65	828485	PC	60	2	M	N	15	18	105	110	Open &Stable	48	Tachypnea	Increased	Poor	Crepts	88	1	124	Normal	Sinus	2	1	98	54
66	1171255	SM	1	1	F	N	2.5	4	50	54	Open &Unstable	Ambu	Bradypnea	Poor	Poor	Crepts	90	2	170	Tachycardia	Sinus	5	2	98	54
67	726943	T	36	2	M	N	12	14	92	95	Open &Stable	70	Tachypnea	Increased	Differential	Crepts	88	1	164	Tachycardia	Sinus	3	1	90	5
68	1169268	S	72	3	F	Y	15	18	115	114	Open &Stable	40	Tachypnea	Increased	Differential	Crepts	88	1	130	Tachycardia	Sinus	4	2	120	74
69	1169920	HA	2	1	M	N	4.5	5	55	58	Open &Stable	78	Tachypnea	Increased	Differential	Crepts	90	2	180	Tachycardia	Sinus	4	2	UR	UR
70	1174830	T	10	1	F	N	6	8	68	72	Open &Stable	78	Tachypnea	Acidotic	Normal	Normal	90	2	190	Tachycardia	Sinus	5	2	UR	UR
71	1172630	A	144	4	M	Y	48	42	158	152	Open &Stable	24	Normal	Normal	Normal	Normal	95	2	124	Tachycardia	Sinus	5	2	118	74
72	1172813	PS	24	2	M	Y	15	12	88	85	Open &Stable	70	Tachypnea	Increased	Poor	ronchi	85	1	190	Tachycardia	arrythmia	4	2	UR	UR
73	1174725	VS	132	4	M	Y	50	40	164	150	Open &Stable	26	Normal	Normal	Normal	Normal	95	2	110	Tachycardia	Sinus	5	2	110	74
74	1176243	P	168	4	M	N	45	48	155	158	Open &Stable	26	Tachypnea	Normal	Normal	Normal	96	3	110	Tachycardia	Sinus	2	1	110	84
75	1177644	RS	48	2	M	N	20	17	105	103	Open &Stable	28	Tachypnea	Normal	Normal	Crepts	97	3	114	Normal	Sinus	4	2	108	68
76	1178368	AK	156	4	F	Y	40	45	150	154	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	88	1	154	Tachycardia	Sinus	2	1	90	40
77	1181007	GS	96	3	M	Y	30	25	134	130	Open &Stable	50	Tachypnea	Increased	Differential	Crepts	90	2	170	Tachycardia	Sinus	2	1	UR	UR
78	1179825	R	120	3	M	Y	30	34	140	144	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	85	1	164	Tachycardia	Sinus	4	2	UR	UR
79	1171665	A	180	4	F	N	45	48	158	160	Open &Stable	42	Tachypnea	Increased	Differential	ronchi	92	2	130	Tachycardia	Sinus	3	1	90	70
80	1181796	A	96	3	M	Y	22	25	130	130	Open &Stable	40	Tachypnea	Increased	Differential	Crepts	92	2	110	Normal	Sinus	5	2	118	68
81	1181850	N	6	1	F	Y	6.5	7	65	66	Open &Unstable	Ambu	Bradypnea	Poor	Differential	Crepts	90	2	164	Tachycardia	Sinus	4	2	UR	UR
82	1183272	DB	120	3	F	Y	25	30	135	140	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	90	2	170	Tachycardia	Sinus	3	1	UR	UR
83	1183314	MA	156	4	F	Y	50	45	160	154	Open &Stable	40	Tachypnea	Increased	Differential	ronchi	92	2	150	Tachycardia	Sinus	3	1	104	74
84	1184086	YC	60	2	M	N	15	17	108	110	Open &Stable	70	Tachypnea	Increased	Poor	Crepts	80	1	148	Tachycardia	Sinus	2	1	124	74
85	1184308	PG	168	4	M	Y	45	48	160	158	Open &Stable	24	Normal	Normal	Normal	Normal	97	3	128	Tachycardia	Sinus	4	2	108	74
86	1356708	G	60	2	F	N	15	18	105	110	Open &Stable	40	Tachypnea	Increased	Differential	Crepts	90	2	142	Tachycardia	Sinus	3	1	80	46
87	1357882	A	168	4	M	N	35	50	146	160	Open &Stable	40	Tachypnea	Increased	Poor	ronchi	92	2	90	Normal	Sinus	2	1	140	90
88	1358195	SS	60	2	M	Y	20	18	110	110	Open &Unstable	Ambu	Bradypnea	Poor	Differential	Crepts	90	2	170	Tachycardia	Sinus	5	2	UR	UR
89	1359301	P	12	1	F	N	10	10	74	75	Open &Stable	70	Tachypnea	Increased	Poor	Crepts	88	1	178	Tachycardia	Sinus	4	2	UR	UR
90	1360008	SS	180	4	M	N	45	55	155	165	Open &Stable	26	Normal	Normal	Normal	Normal	97	3	110	Tachycardia	Sinus	2	1	108	74
91	1360891	KS	72	3	M	N	18	20	110	115	Open &Stable	24	Normal	Normal	Normal	Normal	97	3	98	Normal	Sinus	2	1	108	78
92	1361526	B	120	3	M	N	20	30	135	140	Open &Stable	30	Tachypnea	Normal	Normal	Normal	97	3	110	Normal	Sinus	2	1	110	74
93	1361591	P	72	3	M	N	20	20	112	115	Open &Stable	28	Normal	Normal	Normal	Normal	96	3	150	Tachycardia	Sinus	5	2	108	74
94	1363518	A	84	3	M	N	20	22	120	123	Open &Stable	30	Tachypnea	Normal	Normal	Normal	98	3	110	Tachycardia	Sinus	2	1	110	80
95	1366195	A	144	4	M	N	35	40	142	150	Open &Stable	24	Normal	Normal	Normal	Normal	99	3	90	Normal	Sinus	2	1	140	90
96	1366137	HK	192	4	F	N	45	50	158	160	Open &Stable	25	Normal	Normal	Normal	Normal	96	3	110	Tachycardia	Sinus	2	1	110	74
97	1367735	A	192	4	M	N	50	60	164	170	Open &Unstable	Ambu	Apnea	Poor	Normal	Normal	95	2	160	Tachycardia	Sinus	3	1	UR	UR
98	23851	HJ	144	4	F	N	35	40	145	150	Open &Stable	28	Tachypnea	Increased	Differential	Crepts	90	2	90	Normal	Sinus	2	1	110	80
99	1234221	KV	60	2	M	N	18	18	108	110	Open &Unstable	Ambu	Bradypnea	Poor	Poor	Crepts	90	2	168	Tachycardia	Sinus	3	1	UR	UR
100	1236348	GS	24	2	M	N	8	12	85	87	Open &Stable	70	Tachypnea	Acidotic	Differential	Crepts	90	2	170	Tachycardia	Sinus	3	1	70	38
101	1236673	Y	1	1	M	N	3	4	48	52	Open &Stable	80	Tachypnea	Increased	Normal	Crepts	90	2	180	Tachycardia	arrythmia	3	1	UR	UR
102	1239704	N	120	3	M	N	30	33	140	142	Open &Stable	40	Tachypnea	Increased	Normal	Crepts	91	2	148	Tachycardia	Sinus	5	2	108	80
103	1246827	YS	60	2	M	N	15	18	108	110	Open &Stable	68	Tachypnea	Increased	Differential	Crepts	88	1	168	Tachycardia	Sinus	3	1	70	38
104	1247942	M	120	3	M	N	35	33	140	142	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	92	2	94	Normal	Sinus	3	1	108	74

S no.	MRD No.	BP Interpretation	CP	PP	Skin Temperature	E	V	M	GCS	GCS GP	Pupil	RL	Temperature	TEMP GP	Colour	Primary System	Oxygen	Ventilation	Invasive /Non invasive	NIV/HFNC	Inotropes	Fluid Bolus	Ph	ph gp	pco2	Po2	HCO3	BE
53	1220905	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	95	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	30	60	15.3	-13
54	1221414	Hypotension	Good	Poor	Cool	2	1	3	6	1	2mm	RL	97	1	Pallor	Endocrinology	Yes	Yes	Invasive	NA	Yes	Yes	6.8	1	24	28	0	0
55	1221464	Hypotension	Good	Poor	Cool	2	0	3	5	1	2mm	RL	97	1	Pallor	CNS	Yes	Yes	Invasive	NA	Yes	Yes	7.21	1	30	50	21	-8
56	1221470	Hypotension	Good	Poor	Cool	2	2	4	8	1	2mm	RL	97	1	Pallor	Infectious	Yes	Yes	Invasive	NIV	Yes	Yes	6.8	1	20	28	3.4	-24
57	10733114	Hypotension	Good	Poor	Cool	2	2	2	6	1	2mm	RL	98	1	Pallor	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.01	1	28	60	8	-18
58	1224713	Normal	Good	Good	Warm	4	4	5	13	3	2mm	RL	98	1	Icterus	Hepatic	No	No	NA	NA	No	No	7.24	1	34	58	28	-4.4
59	1225116	Hypotension	Good	Poor	Cool	2	0	3	5	1	2mm	RL	97	1	Pallor	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.24	1	34	58	24.3	-4.8
60	1226404	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Respiratory	Yes	No	Non Inavsive	HFNC	No	No	7.34	1	28	68	22.4	-7.8
61	1226493	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	100	2	Normal	CNS	Yes	No	Non Inavsive	HFNC	No	No	7.24	1	30	74	24	-5.4
62	1226970	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	erythmatous	Infectious	Yes	No	NA	NA	No	No	7.33	1	30	25	16.2	-1.6
63	1227055	Hypotension	Good	Poor	Cool	2	0	3	5	1	2mm	RL	99	1	Pallor	CNS	Yes	Yes	Invasive	NA	Yes	Yes	7.21	1	28	50	21	8
64	1230915	Hypotension	Poor	Poor	Cool	2	0	3	5	1	2mm	RL	102	2	Pallor	Respiratory	Yes	Yes	Invasive	NA	Yes	Yes	7.09	1	29	25	8.6	-21
65	828485	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Respiratory	Yes	Yes	Non Inavsive	HFNC	No	No	7.35	2	26	88	17.4	-11.2
66	1171255	Normal	Good	Poor	Cool	3	0	4	7	1	2mm	RL	97	1	Pallor	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.24	1	30	64	22.8	-4
67	726943	Normal	Good	Good	Warm	2	2	3	7	1	2mm	RL	102	2	Pallor	Respiratory	Yes	Yes	Invasive	NIV	Yes	Yes	7.1	1	30	25	8.8	-19.5
68	1169268	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	Non Inavsive	NIV	Yes	Yes	7.3	1	38	108	22.4	-4.8
69	1169920	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	95	1	Pallor	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.04	1	28	58	18.4	-15.4
70	1174830	Hypotension	Poor	Poor	Cool	2	2	3	7	1	2mm	RL	95	1	Pallor	GIT	Yes	Yes	Invasive	NA	Yes	Yes	6.8	1	60	28	0	0
71	1172630	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.4	2	32	65	27	-0.8
72	1172813	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	98	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.09	1	29	25	8.6	-19.5
73	1174725	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.3	1	34	100	24.2	-1.2
74	1176243	Normal	Good	Good	Warm	3	2	4	9	2	2mm	RL	101	2	Pallor	CNS	No	No	NA	NA	No	No	7.4	2	37	59	22.8	-4.8
75	1177644	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	erythmatous	Other	No	No	NA	NA	No	No	7.34	1	36	120	26	-0.8
76	1178368	Hypotension	Good	Poor	Cool	3	2	3	8	1	2mm	RL	101	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	27	52	11.2	-20.5
77	1181007	Hypotension	Good	Poor	Cool	2	3	4	9	2	2mm	RL	102	2	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.04	1	28	25	5.4	-20
78	1179825	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	95	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.08	1	30	64	12.4	-16.4
79	1171665	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	101	2	Pallor	Infectious	Yes	No	NA	NA	No	Yes	7.33	1	30	25	16.2	-1.6
80	1181796	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.47	3	34	30	24.7	2.1
81	1181850	Hypotension	Good	Poor	Cool	2	0	3	5	1	2mm	RL	95	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.24	1	32	68	20.4	-12.4
82	1183272	Hypotension	Poor	Poor	Cool	2	2	5	9	2	2mm	RL	96	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.09	1	29	25	8.6	-19.5
83	1183314	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	95	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.35	2	26	88	17.4	-11.2
84	1184086	Normal	Good	Good	Warm	3	3	6	12	2	2mm	RL	102	2	Pallor	Respiratory	Yes	Yes	Invasive	NA	Yes	Yes	7.18	1	32	25	10	16.4
85	1184308	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	Non Inavsive	NIV	Yes	Yes	7.33	1	29	25	16.3	-9.2
86	1356708	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	97	1	Pallor	Hepatic	Yes	No	NA	NA	No	Yes	7.26	1	34	98	22.7	-7.4
87	1357882	hypertension	Good	Good	Warm	4	5	6	15	3	2mm	RL	100	2	Pallor	Renal	Yes	Yes	Invasive	NIV	Yes	No	7.01	1	25	48	7.7	-25
88	1358195	Hypotension	Poor	Poor	Cool	2	0	2	4	1	2mm	RL	97	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.14	1	28	80	10.6	-19.5
89	1359301	Hypotension	Good	Poor	Cool	3	4	5	12	2	2mm	RL	101	2	Pallor	GIT	Yes	Yes	Invasive	HFNC	Yes	Yes	7.28	1	54	23	25.4	-1.3
90	1360008	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	100	2	erythmatous	autoimmune	No	No	NA	NA	No	No	7.4	2	33	30	24.7	2.1
91	1360891	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	101	2	Pallor	CNS	No	No	NA	NA	No	No	7.32	1	49	6	20.9	-0.9
92	1361526	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	101	2	Petechie	Infectious	No	No	NA	NA	No	No	7.35	2	26	88	17.4	-11.2
93	1361591	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.33	1	30	25	16.2	-1.6
94	1363518	Normal	Good	Good	Warm	3	2	5	10	2	2mm	RL	101	2	Pallor	CNS	No	No	NA	NA	No	No	7.28	1	34	58	23.4	-4.3
95	1366195	hypertension	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Renal	No	No	NA	NA	No	No	7.29	1	47	18	19.5	-4
96	1366137	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	102	2	Normal	CNS	No	No	NA	NA	No	No	7.4	2	48	96	27.4	1.5
97	1367735	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	101	2	Pallor	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.01	1	58	48	10.8	-18.4
98	23851	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	102	2	Pallor	CNS	No	No	NA	NA	No	No	7.3	1	36	59	27.1	-4.2
99	1234221	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	97	1	Normal	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.28	1	54	23	25.4	-1.3
100	1236348	Hypotension	Good	Poor	Cool	2	2	4	8	1	2mm	RL	96	1	Pallor	Endocrinology	Yes	Yes	Invasive	NA	Yes	Yes	7.21	1	84	46	27	5.7
101	1236673	Hypotension	Poor	Poor	Cool	4	5	6	15	3	2mm	RL	100	2	Normal	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.3	1	32	48	24.4	3.8
102	1239704	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Pallor	MODS	Yes	No	NA	NA	No	No	7.41	2	33	30	24.4	2.1
103	1246827	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	102	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.28	1	54	23	25.4	-1.3
104	1247942	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Infectious	Yes	No	NA	NA	No	No	7.42	2	36	68	24.6	-2.4

S no.	MRD No.	Lac	lactate gp	Hb (D1)	Hb (D3)	Hb (D7)	MPV/ PLT 1	MPV/ PLT 2	MPV/ PLT 3	plt	Platelet (D1)	Platelet (D3)	Platelet(d7)	Diff Platelet (D3)	Diff Platelet (d7)	Diff Platelet (D3-d7)	MPV (D1)	MPV (D3)	MPV (D7)	Diff MPV (D3)	Diff MPV (D7)	Diff MPV (D3-D7)	MPV	MPV GROUP	AB MPV	TLC (D1)	RDW (D1)	RDW (D3)	RDW (D7)	Na	K	BU
53	1220905	8.8	2	5.8	5.9	-	0.32	0.20	-	1.00	27	55	-	28	-	-	8.6	11	-	2.4	-	-	2	2	-	12.1	20.6	25.3	-	148	6.5	49
54	1221414	5	2	8.2	7.8	-	0.19	0.23	-	2.00	61	49	-	-12	-	-	11.3	11.5	-	0.2	-	-	2	2	-	6.1	17.5	17.9	-	163	3.03	69
55	1221464	3	2	11.2	9.3	6	0.06	0.16	0.09	3.00	150	60	104	-90	-46	44	9.1	9.7	9.5	0.6	0.4	-0.2	2	2	2	23	20.3	21.3	18.8	150	3.02	82
56	1221470	10	2	12.4	10.5	9.6	0.20	0.25	0.54	2.00	50	45	22	-5	-28	-23	10	11.4	11.8	1.4	1.8	0.4	2	2	3	10.8	20.3	20.8	22.4	123	2.62	44
57	10733114	8.4	2	7.5	7.4	6.8	0.05	0.14	0.42	3.00	144	64	26	-80	-118	-38	7.4	8.8	11	1.4	3.6	2.2	1	2	2	26.1	19.2	32.7	33.6	167	2.62	135
58	1224713	2	2	10.2	10.4	9.8	0.24	0.19	0.06	1.00	41	58	240	17	199	182	10	10.8	14.8	0.8	4.8	4	2	2	3	8.8	16.9	17.58	18.3	135	4.17	43
59	1225116	2.4	2	6.6	9.3	9.5	0.09	0.18	0.12	3.00	120	65	104	-55	-16	39	10.5	11.4	12.7	0.9	2.2	1.3	2	2	3	6.5	20.1	18.3	16.7	142	3.48	30
60	1226404	1.8	1	9.8	8.9	7.4	0.10	0.19	0.08	3.00	107	60	131	-47	24	71	10.8	11.3	10.8	0.5	0	-0.5	2	2	2	10.8	18.9	19	17.3	184	4.27	112
61	1226493	1.8	1	9.4	12.6	10.5	0.08	0.03	0.05	3.00	150	301	308	151	158	7	12	10.1	16.1	-1.9	4.1	6	3	2	3	13.8	19.5	18.1	19.2	149	3.84	22
62	1226970	1.7	1	16.1	10.1	8.8	0.64	0.29	0.12	1.00	22	33	80	11	58	47	14	9.5	9.9	-4.5	-4.1	0.4	3	2	2	10.4	14	13.9	14.8	141	5.18	39
63	1227055	4	2	8.6	6.8	-	0.22	0.23	-	1.00	40	42	-	2	-	-	8.8	9.7	-	0.9	-	-	2	2	-	23.7	29.1	29.5	-	128	3.68	101
64	1230915	14.4	2	6.3	9.1	5.5	0.06	0.76	0.06	3.00	150	14	128	-136	-22	114	9.4	10.6	7.6	1.2	-1.8	-3	2	2	2	6.3	19.7	16.5	17.1	125	4.08	9
65	828485	2.9	2	10.1	10	10.6	0.13	0.12	0.04	2.00	82	105	272	23	190	167	10.8	12.5	11.5	1.7	0.7	-1	2	3	2	2.3	15.6	15.6	15.2	138	3.36	23
66	1171255	4	2	8.3	6.9	8.2	0.06	0.15	0.14	3.00	150	60	72	-90	-78	12	9.7	8.9	10.2	-0.8	0.5	1.3	2	2	2	5.6	18.7	17.7	33.9	134	7.29	95
67	726943	12.4	2	11.9	11.1	8.2	0.07	0.07	0.02	3.00	150	160	412	10	262	252	10.4	11.1	10.1	0.7	-0.3	-1	2	2	2	6	15.8	15.6	15.8	137	5.2	25
68	1169268	8.4	2	8.4	12.8	11.5	0.19	0.20	0.10	2.00	57	47	106	-10	49	59	10.6	9.4	10.4	-1.2	-0.2	1	2	2	2	9.7	13.7	14.5	14.3	139	4.34	24
69	1169920	8.5	2	7.6	9.2	12.5	0.05	0.10	0.22	3.00	148	80	52	-68	-96	-28	7.6	8.2	11.3	0.6	3.7	3.1	2	2	2	4.6	17.9	16.4	17.3	135	5.09	154
70	1174830	12	2	8.8	7.5	9.1	0.10	0.21	0.10	3.00	138	48	132	-90	-6	84	13.6	9.9	12.9	-3.7	-0.7	3	3	2	3	7	18.6	18.5	21.8	149	4.07	103
71	1172630	2	2	15.6	14.6	11.4	0.54	0.35	0.24	1.00	22	30	44	8	22	14	11.8	10.4	10.5	-1.4	-1.3	0.1	3	2	2	4.4	13.2	13.2	13.3	133	5.6	46
72	1172813	14.4	2	8.7	9.4	-	0.13	0.07	-	2.00	80	150	-	70	-	-	10.5	10.7	-	0.2	-	-	2	2	-	9.6	19.3	18.5	-	141	4.66	14
73	1174725	3.4	2	13.3	11.6	11.2	0.42	0.25	0.08	1.00	26	44	122	18	96	78	10.9	10.8	10	-0.1	-0.9	-0.8	2	2	2	6.3	19.8	18.6	19.1	136	4.43	16
74	1176243	2.8	2	12	11	10	0.08	0.11	0.07	3.00	150	110	180	-40	30	70	12	12.6	12.6	0.6	0.6	0	3	3	3	14.4	16.9	17	16.9	138	4.32	36
75	1177644	2.1	2	10.8	-	-	0.10	-	-	3.00	114	-	-	-	-	-	11.2	-	-	-	-	-	2	3	-	9.2	14.7	-	-	144	4.19	22
76	1178368	10	2	7.5	7.7	10.3	0.50	0.36	0.65	1.00	22	24	18	2	-4	-6	10.9	8.6	11.7	-2.3	0.8	3.1	2	2	3	14.2	18.5	18.2	17.5	130	4.36	47
77	1181007	10	2	17.5	18.4	-	0.52	0.47	-	1.00	20	24	-	4	-	-	10.3	11.2	-	0.9	-	-	2	2	-	9.8	13.1	13	-	137	5.01	29
78	1179825	12.4	2	12.4	-	-	0.46	-	-	1.00	14	-	-	-	-	-	6.5	-	-	-	-	-	1	3	-	14.8	14.5	-	-	133	6.19	45
79	1171665	1.7	1	7.3	7.8	7.8	0.39	0.11	0.11	1.00	30	90	92	60	62	2	11.6	10.2	10.4	-1.4	-1.2	0.2	2	2	2	5.9	23	23.7	23	143	3.82	33
80	1181796	2.2	2	16.9	12.2	-	0.19	0.09	-	2.00	60	130	-	70	-	-	11.3	11.8	-	0.5	-	-	2	3	-	13	14.1	13.9	-	134	5.43	27
81	1181850	6.8	2	10	8.3	-	0.36	0.33	-	1.00	30	34	-	4	-	-	10.7	11.3	-	0.6	-	-	2	2	-	15.9	14.5	27.4	-	134	4.13	91
82	1183272	14.4	2	7.9	13.3	11.7	0.72	0.38	0.47	1.00	12	30	22	18	10	-8	8.6	11.5	10.4	2.9	1.8	-1.1	2	2	2	3.5	14.1	17.4	19.2	129	4.54	43
83	1183314	2.9	2	16.7	11.7	10.1	0.75	0.18	0.10	1.00	10	68	116	58	106	48	7.5	12.1	11.9	4.6	4.4	-0.2	2	3	3	7.3	15.6	15.5	16.3	146	6.54	36
84	1184086	8.4	2	11.2	8	7.6	0.09	0.25	0.05	2.00	95	40	252	-55	157	212	8.6	10.1	13.3	1.5	4.7	3.2	2	2	3	2.1	18.6	19.1	19.9	143	5.07	22
85	1184308	1.7	1	12.9	10.4	10.7	0.40	0.31	0.10	1.00	22	36	110	14	88	74	8.9	11.2	11.5	2.3	2.6	0.3	2	2	2	11.4	16.6	16.5	16.1	141	3.64	59
86	1356708	5	2	7	3.8	7.6	0.08	0.09	0.14	3.00	108	100	66	-8	-42	-34	9.1	9.3	9.4	0.2	0.3	0.1	2	2	2	17	17.7	19.9	15.6	141	4.5	21
87	1357882	7.8	2	7.4	7.1	7.8	0.05	0.05	0.15	3.00	150	150	62	0	-88	-88	7.7	7.9	9.2	0.2	1.5	1.3	2	2	2	13.9	18.1	17.8	17.4	125	3.94	417
88	1358195	8	2	15	-	-	0.27	-	-	1.00	30	-	-	-	-	-	8.1	-	-	-	-	-	2	3	-	15	15.9	-	-	131	5.07	67
89	1359301	2.4	2	7.5	5.4	7.1	0.06	0.13	0.22	3.00	140	78	51	-62	-89	-27	8.8	9.8	11.2	1	2.4	1.4	2	2	2	6.3	16.2	16.3	25.2	121	4.68	94
90	1360008	2.2	2	10.1	8.1	7.7	0.40	0.49	0.20	1.00	22	18	54	-4	32	36	8.8	8.9	10.8	0.1	2	1.9	2	2	2	9.4	19.9	23	27.9	134	4.06	54
91	1360891	1.5	1	11	10.4	-	0.10	0.10	-	3.00	150	152	-	2	-	-	15.1	14.6	-	-0.5	-	-	3	3	-	6.5	14.6	13.7	-	136	5.61	21
92	1361526	2.9	2	11.4	10.2	10.4	0.07	0.11	0.04	3.00	150	84	226	-66	76	142	9.9	9.6	9.1	-0.3	-0.8	-0.5	2	2	2	11.4	14.6	15.3	14.7	132	3.1	16
93	1361591	1.7	1	9.2	9.7	9.3	0.45	0.28	0.05	1.00	28	42	218	14	190	176	12.5	11.8	9.9	-0.7	-2.6	-1.9	3	3	2	10.9	15.3	15	15.1	138	4.94	67
94	1363518	2	2	7.91	-	-	0.07	-	-	3.00	150	-	-	-	-	-	10.5	-	-	-	-	-	2	3	-	22.8	15.9	-	-	138	4.24	13
95	1366195	4	2	3.8	9.8	9.8	0.07	0.09	0.07	3.00	120	128	132	8	12	4	8.8	11.1	9.4	2.3	0.6	-1.7	2	2	2	7.6	16.2	15	14.7	141	4.99	272
96	1366137	2.2	2	9.2	9	8.6	0.42	0.35	0.19	1.00	26	32	60	6	34	28	10.9	11.3	11.6	0.4	0.7	0.3	2	2	2	8.9	18.9	17.7	19	138	4	29
97	1367735	8.4	2	13.9	-	-	0.14	-	-	2.00	80	-	-	-	-	-	11.4	-	-	-	-	-	2	3	-	2.8	19	-	-	150	3.39	41
98	23851	3	2	9.7	-	-	0.13	-	-	2.00	96	-	-	-	-	-	12.8	-	-	-	-	-	3	3	-	6.2	21.6	-	-	142	3.81	54
99	1234221	2.4	2	7.9	13	9.3	0.08	0.02	0.05	2.00	100	287	144	187	44	-143	7.7	6.7	6.6	-1	-1.1	-0.1	2	1	1	4.3	18.9	28.1	28.6	145	3.58	29
100	1236348	3.5	2	7.4	10.9	9	0.05	0.21	0.18	3.00	150	40	60	-110	-90	20	7.6	8.4	10.5	0.8	2.9	2.1	2	2	2	13.3	20.6	39.9	39.3	150	2.1	36
101	1236673	4	2	11.1	9.3	10.2	0.66	0.21	0.33	1.00	16	58	32	42	16	-26	10.6	12.2	10.7	1.6	0.1	-1.5	2	3	2	8.2	19.6	19.3	20.5	130	4.2	25
102	1239704	2.2	2	8.4	7.6	7.1	0.06	0.07	0.07	3.00	150	118	130	-32	-20	12	8.7	8.3	8.8	-0.4	0.1	0.5	2	2	2	4.2	37.1	38.5	39.8	158	3.4	162
103	1246827	2.4	2	8.7	7.9	-	0.14	0.10	-	2.00	100	113	-	13	-	-	13.8	11.5	-	-2.3	-	-	3	2	-	25.9	17.7	17.2	-	147	3.74	56
104	1247942	1.2	1	9.2	8.9	8.4	0.40	0.25	0.13	1.00	30	56	91	26	61	35	12.1	13.9	12.1	1.8	0	-1.8	3	3	3	6.9	13.6	14.1	14.3	124	3.63	59

S no.	MRD No.	Creat	LDH	SGOT	SGPT	CRP	crp gp	Covid Ab	BLOOD CULTURE	URINE CULTURE	BAL CULTURE	RBS	Blood Product Transfusion	PRISM	PRISM GP	Duration Of Stay	Duration Of Stay GP	Outcome
53	1220905	1.32	25540	7935	5857	1.5	1	-	No growth	No growth	No growth	150	PRBC,RDP,FFP	25	2	2	1	Expired
54	1221414	1.45	-	175	243	175.47	2	-	Acinetobacter Baumanni	No growth	No growth	500	PRBC,RDP	40	2	3	2	Expired
55	1221464	1.13	1570	1007	192	319.84	2	2687	No growth	No growth	Acinetobacter baumanni	94	PRBC,RDP,FFP	10	1	11	3	Shifted
56	1221470	0.69	-	67	31	139.47	2	-	No growth	No growth	No growth	20	PRBC,RDP,FFP	46	2	5	2	Expired
57	10733114	1.66	-	171	224	5.12	1	-	No growth	No growth	No growth	20	PRBC,FFP,RDP	27	2	6	2	Expired
58	1224713	0.69	-	716	419	86.86	2	-	No growth	No growth	No growth	30	RDP	24	2	6	2	Shifted
59	1225116	0.31	-	130	54	4.8	1	-	No growth	No growth	No growth	18	PRBC	18	2	6	2	Shifted
60	1226404	1.37	1469	92	561	3.14	1	0.4	No growth	No growth	No growth	78	NOT DONE	12	2	6	2	Shifted
61	1226493	0.21	-	24	12	61.6	2	-	No growth	No growth	No growth	54	NOT DONE	8	1	20	4	Shifted
62	1226970	1.33	1524	3751	1852	18.63	2	-	No growth	No growth	No growth	104	PRBC,FFP	12	2	10	3	Shifted
63	1227055	1.08	-	32	31	239.17	2	-	No growth	No growth	No growth	24	PRBC	37	2	2	1	DAMA
64	1230915	0.44	-	357	203	4.8	1	-	No growth	No growth	No growth	24	PRBC,FFP,RDP	38	2	4	2	Expired
65	828485	0.29	-	57	16	10.27	2	-	No growth	No growth	No growth	108	NOT DONE	10	1	5	2	Shifted
66	1171255	0.69	-	200	443	426.48	2	-	No growth	No growth	Klebsiella Aeruginosa	28	PRBC,RDP,FFP	41	2	6	2	Expired
67	726943	0.35	1358	496	290	1.46	1	-	No growth	No growth	E.Coli	40	NOT DONE	40	2	7	2	Expired
68	1169268	0.5	-	401	160	1.4	1	-	No growth	No growth	No growth	28	NOT DONE	14	2	5	2	Shifted
69	1169920	0.58	-	146	17	279.59	2	5.6	Enterococcus faecium	No growth	No growth	30	PRBC,FFP,RDP	36	2	9	3	DAMA
70	1174830	0.98	-	145	32	8.45	2	0.4	No growth	No growth	Stenotrophomonas maltophilia	22	PRBC	38	2	15	4	Expired
71	1172630	0.71	-	212	82	1.5	1	-	No growth	No growth	No growth	90	NOT DONE	7	1	4	2	Shifted
72	1172813	0.23	-	73	12	17.11	2	-	No growth	No growth	No growth	22	NOT DONE	27	2	3	2	Expired
73	1174725	0.43	-	646	245	1.65	1	-	No growth	No growth	No growth	94	NOT DONE	7	1	4	2	Shifted
74	1176243	0.43	-	94	50	284.21	2	-	No growth	No growth	No growth	75	NOT DONE	12	2	8	3	Shifted
75	1177644	0.4	-	36	22	75.01	2	-	No growth	No growth	No growth	90	NOT DONE	15	2	2	1	Shifted
76	1178368	0.89	-	15	30	78.51	2	714	No growth	No growth	No growth	30	PRBC,FFP,RDP	8	1	15	4	Shifted
77	1181007	0.57	-	1808	758	9.75	2	1399	No growth	No growth	No growth	25	PRBC,RDP,FFP	34	2	2	1	Expired
78	1179825	1.2	1250	3461	1457	1.4	1	-	No growth	No growth	No growth	30	PRBC,FFP,RDP	35	2	2	1	Expired
79	1171665	0.47	-	101	43	164.12	2	-	No growth	No growth	No growth	40	PRBC	10	1	4	2	Shifted
80	1181796	0.38	-	408	209	7.88	2	-	No growth	No growth	No growth	78	NOT DONE	14	2	3	2	Shifted
81	1181850	0.9	-	1740	7129	1.4	1	-	Pseudomonas aeruginosa	No growth	No growth	108	PRBC,RDP,FFP,CRYO	38	2	3	2	Expired
82	1183272	0.63	1264	3529	865	1.26	1	-	No growth	No growth	No growth	30	PRBC,RDP,FFP	48	2	9	3	Expired
83	1183314	0.95	-	2148	1017	7.4	2	-	No growth	No growth	No growth	90	RDP	18	2	6	2	Shifted
84	1184086	0.46	524	4573	1170	0.22	1	-	No growth	No growth	No growth	25	NOT DONE	18	2	22	4	Shifted
85	1184308	1	-	1320	379	30.04	2	-	No growth	No growth	No growth	74	NOT DONE	10	1	5	2	Shifted
86	1356708	0.35	545	54	23	358.58	2	-	No growth	No growth	No growth	108	PRBC	12	2	5	2	Shifted
87	1357882	11.25	373	29	11	2.66	1	-	No growth	pseudomonas aeruginosa	No growth	90	PRBC	12	2	10	3	Shifted
88	1358195	0.5	-	1913	664	1.43	1	-	No growth	No growth	No growth	30	PRBC,FFP	40	2	2	1	Expired
89	1359301	1.61	713	328	125	231.88	2	112.9	No growth	No growth	No growth	25	PRBC,RDP	32	2	5	2	Expired
90	1360008	0.98	2545	124	31	1.4	1	-	No growth	No growth	No growth	78	RDP	4	1	5	2	Shifted
91	1360891	0.39	353	15	21	12.94	2	-	No growth	No growth	No growth	90	NOT DONE	6	1	3	2	Shifted
92	1361526	0.23	363	51	135	322	2	-	No growth	No growth	No growth	40	NOT DONE	7	1	6	2	Shifted
93	1361591	0.56	-	193	88	209.27	2	2500	Elizabethkingia meningoseptica	No growth	No growth	58	RDP	16	2	7	2	Shifted
94	1363518	0.45	-	55	34	135.62	2	-	Streptococcus agalactiae	No growth	No growth	188	NOT DONE	7	1	5	2	Shifted
95	1366195	15.18	353	20	8	1.84	1	-	Klebsiella pneumoniae	No growth	No growth	180	PRBC,RDP	16	2	30	4	Expired
96	1366137	0.51	842	54	142	52.94	2	-	No growth	No growth	No growth	90	RDP	10	1	5	2	Shifted
97	1367735	1.06	-	439	308	73	2	-	E.COLI	No growth	No growth	28	PRBC,RDP,FFP	28	2	2	1	Shifted
98	23851	0.23	-	-	-	52.59	2	-	No growth	No growth	No growth	106	NOT DONE	8	1	4	2	Shifted
99	1234221	0.18	1152	447	108	8.66	2	-	No growth	No growth	No growth	26	PRBC,RDP,FFP	28	2	11	3	Expired
100	1236348	0.86	-	647	4173	29.28	2	-	No growth	Klebsiella pneumonia	No growth	500	PRBC,FFP,RDP	28	2	28	4	Shifted
101	1236673	0.42	-	-	-	73.06	2	-	Candida tropicalis	No growth	No growth	80	PRBC,RDP,FFP	37	2	15	4	Expired
102	1239704	2.16	-	996	5410	47.77	2	-	No growth	No growth	No growth	88	PRBC	17	2	5	2	Shifted
103	1246827	0.51	-	51	28	341.57	2	-	MRSA	No growth	No growth	40	PRBC,RDP	29	2	3	2	Expired
104	1247942	0.75	-	685	338	84.45	2	0.564	No growth	No growth	No growth	38	NOT DONE	14	2	4	2	Shifted

S no.	MRD No.	Initial	Age (Months)	AGE GROUP	Sex	DENGUE	Weight Actual	Weight expected	Height Actual	Height Expected	Airway	RR	RR Interpretation	Efforts	Air entry	Auscultation	SPO2	SPO2 GP	HR	HR Interpretation	Rhythm	CFT	CFT GP	SBP	DBP
105	1248333	P	180	4	M	N	35	50	155	160	Open &Stable	30	Tachypnea	Increased	Normal	Normal	95	2	98	Normal	Sinus	2	1	110	84
106	1249543	I	108	3	F	N	18	28	128	133	Open &Stable	Ambu	Bradypnea	Poor	Poor	Crepts	90	2	150	Tachycardia	Sinus	3	1	70	34
107	1250723	GS	156	4	M	N	45	46	158	156	Open &Unstable	Ambu	Apnea	Poor	Normal	Normal	85	1	110	Tachycardia	Sinus	2	1	118	70
108	1252419	K	120	3	M	N	30	33	138	142	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	90	2	148	Tachycardia	Sinus	4	2	98	70
109	1252579	JK	168	4	F	N	40	48	150	156	Open &Unstable	Ambu	Bradypnea	Poor	Poor	Crepts	92	2	188	Tachycardia	arrythmia	3	1	UR	UR
110	1256942	P	36	2	M	N	12	14	95	96	Open &Stable	28	Normal	Normal	Normal	Normal	97	3	94	Normal	Sinus	2	1	110	74
111	1258361	JK	192	4	F	N	48	50	155	158	Open &Stable	48	Tachypnea	Increased	Poor	Crepts	90	2	108	Tachycardia	Sinus	3	1	114	80
112	1258919	L	108	3	M	N	25	29	135	136	Open &Stable	40	Tachypnea	Increased	Differential	Crepts	92	2	94	Normal	Sinus	2	1	112	54
113	1259849	A	60	2	F	N	15	18	105	110	Open &Stable	70	Tachypnea	Increased	Differential	Crepts	80	1	159	Tachycardia	Sinus	3	1	70	46
114	1260733	V	96	3	M	N	25	26	128	130	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Crepts	95	2	140	Tachycardia	Sinus	2	1	88	52
115	11902470	SS	108	3	M	Y	35	29	140	136	Open &Stable	44	Tachypnea	Increased	Differential	Crepts	92	2	110	Tachycardia	Sinus	3	1	124	80
116	90783	CM	156	4	M	Y	45	46	158	156	Open &Stable	38	Tachypnea	Increased	Differential	Crepts	93	2	150	Tachycardia	Sinus	4	2	104	90
117	1234220	AV	60	2	M	N	17	18	108	110	Open &Unstable	Ambu	Bradypnea	Poor	Poor	Crepts	90	2	168	Tachycardia	Sinus	3	1	UR	UR
118	1247940	A	120	3	M	N	36	33	142	142	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	92	2	94	Normal	Sinus	3	1	108	74
119	1183270	D	120	3	F	Y	28	30	136	140	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	90	2	170	Tachycardia	arrythmia	3	1	UR	UR
120	1192596	D	168	4	M	Y	60	50	168	161	Open &Stable	58	Tachypnea	Increased	Differential	Crepts	88	1	146	Tachycardia	Sinus	2	1	90	70
121	1225106	DS	132	4	M	N	34	38	144	147	Open &Unstable	Ambu	Apnea	Poor	Differential	Crepts	92	2	130	Tachycardia	Sinus	4	2	80	40
122	1193458	M	132	4	M	Y	40	37	145	146	Open &Stable	28	Normal	Normal	Normal	Normal	96	3	104	Normal	Sinus	2	1	120	78
123	1194395	A	108	3	F	Y	26	28	132	134	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	92	2	94	Normal	Sinus	4	2	110	80
124	1195150	JK	84	3	F	N	18	21	118	121	Open &Unstable	Ambu	Bradypnea	Poor	Differential	Crepts	92	2	160	Tachycardia	Sinus	3	1	UR	UR
125	1195251	YS	144	4	M	Y	45	41	160	152	Open &Stable	28	Normal	Normal	Normal	Normal	90	2	128	Tachycardia	Sinus	4	2	94	50
126	1256842	N	36	2	M	N	14	14	96	96	Open &Stable	30	Normal	Normal	Normal	Normal	97	3	94	Normal	Sinus	2	1	110	74
127	1195266	K	24	2	M	N	10	12	85	87	Open &Stable	40	Normal	Normal	Normal	Normal	96	3	130	Normal	Sinus	2	1	94	50
128	1196674	NK	120	3	M	Y	40	32	145	140	Open &Stable	54	Tachypnea	Increased	Differential	Crepts	90	2	154	Tachycardia	Sinus	3	1	UR	UR
129	1141812	SK	2	1	M	N	3	5	54	57	Open &Stable	78	Tachypnea	Increased	Normal	ronchi	85	1	150	Tachycardia	Sinus	2	1	UR	UR
130	1197572	AJ	132	4	F	Y	38	36	146	146	Open &Stable	30	Normal	Normal	Normal	Normal	96	3	140	Tachycardia	Sinus	3	1	90	50
131	1210118	DK	24	2	M	N	9.5	11	84	87	Open &Stable	70	Tachypnea	Increased	Normal	Crepts	90	2	120	Normal	Sinus	2	1	90	54
132	1361590	DS	72	3	M	N	22	20	112	115	Open &Stable	28	Normal	Normal	Normal	Normal	96	3	150	Tachycardia	Sinus	5	2	108	74
133	1364518	SK	84	3	M	N	21	22	120	123	Open &Stable	30	Tachypnea	Normal	Normal	Normal	98	3	110	Tachycardia	Sinus	2	1	110	80
134	1367195	V	144	4	M	N	36	40	142	150	Open &Stable	24	Normal	Normal	Normal	Normal	99	3	90	Normal	Sinus	2	1	140	90
135	1172624	S	144	4	M	Y	49	42	158	152	Open &Stable	24	Normal	Normal	Normal	Normal	95	2	124	Tachycardia	Sinus	5	2	118	74
136	1172823	NS	24	2	M	Y	16	12	88	85	Open &Stable	70	Tachypnea	Increased	Poor	ronchi	85	1	190	Tachycardia	arrythmia	4	2	UR	UR
137	1174724	KS	132	4	M	Y	51	40	164	150	Open &Stable	26	Normal	Normal	Normal	Normal	95	2	110	Tachycardia	Sinus	5	2	110	74
138	1357708	G	60	2	F	N	22	19	125	110	Open &Stable	24	Normal	Normal	Normal	Stridor	97	3	132	Tachycardia	Sinus	2	1	120	80
139	1356831	A	42	2	M	N	25	15.5	99	99.5	Open &Stable	60	Tachypnea	Increased	Differential	Crepts	84	1	164	Tachycardia	Sinus	3	1	100	56
140	1198636	S	24	2	M	Y	10	12	85	87	Open &Stable	50	Tachypnea	Increased	Differential	Crepts	90	2	170	Tachycardia	arrythmia	4	2	UR	UR
141	1051650	GR	8	1	M	N	10	8.6	70	70.6	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Normal	85	1	160	Tachycardia	Sinus	2	1	94	60
142	1093270	FS	12	1	M	N	6.5	9.6	67	75.7	Open &Stable	75	Tachypnea	Increased	Normal	Normal	94	2	145	Normal	Sinus	2	1	88	40
143	1104802	JS	72	3	M	N	18	20	116	115	Open &Stable	34	Tachypnea	Increased	Normal	Normal	98	3	148	Normal	Sinus	3	1	90	40
144	1116690	JP	36	2	M	N	29	25	143	126	Open &Stable	50	Tachypnea	Increased	Differential	Normal	93	2	106	Tachycardia	Sinus	3	1	95	50
145	1128996	IK	132	4	M	N	34.6	43.3	152	154.3	Open &Stable	30	Normal	Normal	Normal	Normal	98	3	130	Normal	Sinus	2	1	104	69
146	1198647	LS	60	2	M	Y	20	18	115	110	Open &Stable	48	Tachypnea	Increased	Differential	Crepts	90	2	154	Tachycardia	arrythmia	4	2	78	50
147	99641	MT	36	2	F	N	12	14	92	95	Open &Stable	62	Tachypnea	Increased	Normal	Normal	92	2	164	Tachycardia	Sinus	3	1	96	54
148	1200396	HC	192	4	M	Y	55	57	166	168	Open &Stable	24	Normal	Normal	Normal	Normal	97	3	110	Tachycardia	Sinus	3	1	124	80
149	1200286	SK	108	3	F	Y	35	28	140	134	Open &Stable	40	Tachypnea	Increased	Poor	Crepts	88	1	145	Tachycardia	Sinus	4	2	80	40
150	1195916	AT	168	4	M	Y	60	50	168	161	Open &Stable	30	Tachypnea	Increased	Normal	Normal	92	2	124	Tachycardia	Sinus	3	1	118	72
151	1200417	M	180	4	F	N	45	49	150	157	Open &Unstable	Ambu	Bradypnea	Poor	Normal	Normal	95	2	142	Tachycardia	Sinus	4	2	70	40
152	1200364	AB	156	4	M	Y	60	45	164	456	Open &Stable	40	Tachypnea	Increased	Differential	Crepts	90	2	150	Tachycardia	Sinus	3	1	110	80
153	1201136	JS	120	3	M	Y	40	33	150	142	Open &Stable	60	Tachypnea	Increased	Differential	Crepts	92	2	160	Tachycardia	Sinus	4	2	UR	UR
154	1204209	G	168	4	M	Y	45	50	158	160	Open &Stable	26	Normal	Normal	Normal	Normal	97	3	120	Tachycardia	Sinus	5	2	114	80
155	1203271	H	156	4	M	Y	50	45	160	156	Open &Stable	28	Tachypnea	Increased	Normal	Normal	95	2	128	Tachycardia	Sinus	4	2	110	84
156	1205468	SD	168	4	F	Y	45	47	154	156	Open &Stable	24	Normal	Normal	Normal	Normal	97	3	120	Tachycardia	Sinus	4	2	108	76

S no.	MRD No.	BP Interpretation	CP	PP	Skin Temperature	E	V	M	GCS	GCS GP	Pupil	RL	Temperature	TEMP GP	Colour	Primary System	Oxygen	Ventilation	Invasive /Non invasive	NIV/HFNC	Inotropes	Fluid Bolus	Ph	ph gp	pco2	Po2	HCO3	BE
105	1248333	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	100	2	Pallor	autoimmune	No	No	NA	NA	No	No	7.33	1	30	98	22.4	-4.5
106	1249543	Hypotension	Good	Poor	Cool	2	2	3	7	1	2mm	RL	101	2	Pallor	CNS	Yes	Yes	Invasive	NA	Yes	Yes	7.04	1	60	48	10.8	-18.8
107	1250723	Normal	Good	Good	Warm	1	0	1	2	1	2mm	RL	100	2	Pallor	Surgical	Yes	Yes	Invasive	NA	No	No	7.24	1	36	96	20.4	-10.4
108	1252419	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	102	2	Pallor	Infectious	Yes	Yes	Invasive	NA	No	No	7.34	1	46	108	22.4	-6.4
109	1252579	Hypotension	Poor	Poor	Cool	2	0	3	5	1	2mm	RL	103	3	Pallor	CVS	Yes	Yes	Invasive	NA	Yes	Yes	7	1	28	48	7.7	-54
110	1256942	Normal	Good	Good	Warm	3	4	5	12	2	2mm	RL	97	1	Normal	CNS	Yes	Yes	Invasive	NA	No	No	7.4	2	34	98	27.4	-0.08
111	1258361	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	100	2	Icterus	Hepatic	Yes	No	NA	NIV	Yes	Yes	7.38	2	42	120	27	-0.8
112	1258919	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	102	2	Pallor	Infectious	Yes	No	NA	NA	Yes	Yes	7.4	2	28	48	22.4	4.6
113	1259849	Hypotension	Good	Poor	Cool	2	2	3	7	1	2mm	RL	101	2	erythmatous	MODS	Yes	Yes	Invasive	NA	Yes	Yes	7.14	1	28	80	11.6	-18.4
114	1260733	Hypotension	Good	Poor	Cool	3	0	4	7	1	2mm	RL	101	2	Burns	Other	Yes	Yes	Invasive	HFNC	Yes	Yes	7.28	1	50	23	25.4	-2.3
115	11902470	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.3	1	34	48	24.7	-2.4
116	90783	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	Yes	Yes	Non Inavsive	NIV	Yes	Yes	7.34	1	28	34	22.8	-4
117	1234220	Hypotension	Good	Poor	Cool	1	0	1	2	1	2mm	RL	97	1	Normal	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.28	1	54	23	25.4	-1.3
118	1247940	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Infectious	Yes	No	NA	NA	No	No	7.42	2	36	68	24.6	-2.4
119	1183270	Hypotension	Good	Poor	Cool	2	2	5	9	2	2mm	RL	96	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.09	1	29	28	8.6	-19.5
120	1192596	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	97	1	erythmatous	Infectious	Yes	No	Non Inavsive	NIV	Yes	Yes	7.28	1	48	23	25	-1.3
121	1225106	Hypotension	Good	Poor	Cool	2	0	3	5	1	2mm	RL	97	1	Pallor	Surgical	Yes	Yes	Invasive	NA	Yes	Yes	7.24	1	34	58	22.4	-4.8
122	1193458	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	No	No	NA	NA	No	No	7.4	2	34	96	24.8	0.8
123	1194395	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	erythmatous	Infectious	Yes	No	NA	NIV	No	Yes	7.34	1	46	108	22.4	-6.4
124	1195150	Hypotension	Good	Poor	Cool	2	0	4	6	1	2mm	RL	97	1	Pallor	CVS	Yes	Yes	Invasive	NA	Yes	Yes	7	1	24	54	4.6	-27.4
125	1195251	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.38	2	42	120	27	-0.8
126	1256842	Normal	Good	Good	Warm	3	4	5	12	2	2mm	RL	97	1	Normal	CNS	Yes	Yes	Invasive	NA	No	No	7.4	2	34	104	26.8	-0.08
127	1195266	Normal	Good	Good	Warm	3	5	5	13	3	2mm	RL	100	2	Petechie	Infectious	Yes	No	NA	NA	No	No	7.38	2	28	58	22.8	2.8
128	1196674	Hypotension	Good	Poor	Cool	2	3	4	9	2	2mm	RL	97	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.11	1	30	28	8.4	-19.5
129	1141812	Hypotension	Good	Poor	Cool	2	2	3	7	1	2mm	RL	99	1	Pallor	Respiratory	Yes	Yes	Invasive	NA	No	No	7.2	1	24	58	22.4	-4.4
130	1197572	Hypotension	Good	Poor	Cool	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	Yes	No	NA	NA	Yes	Yes	7.4	2	39	68	22.8	-2.4
131	1210118	Normal	Good	Good	Warm	4	4	5	13	3	2mm	RL	101	2	erythmatous	MODS	Yes	No	NA	NA	No	No	7.3	1	34	88	24	-5
132	1361590	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.33	1	30	25	16.2	-1.6
133	1364518	Normal	Good	Good	Warm	3	2	5	10	2	2mm	RL	101	2	Pallor	CNS	No	No	NA	NA	No	No	7.28	1	34	58	23.4	-4.3
134	1367195	hypertension	Good	Good	Warm	4	5	6	15	3	2mm	RL	101	2	Pallor	Renal	No	No	NA	NA	No	No	7.29	1	47	18	19.5	-4
135	1172624	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.4	2	32	65	27	-0.8
136	1172823	Hypotension	Poor	Poor	Cool	3	3	5	11	2	2mm	RL	98	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.09	1	29	25	8.6	-19.5
137	1174724	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.3	1	34	100	24.2	-1.2
138	1357708	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.46	3	34	32	25	0.8
139	1356831	Normal	Good	Good	Warm	4	3	6	13	3	2mm	RL	97.6	1	Pallor	Respiratory	Yes	Yes	Invasive	NA	No	No	7.3	1	28	78	24	3.4
140	1198636	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	97	1	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.1	1	28	50	10.4	-18
141	1051650	Normal	Good	Good	Warm	1	0	4	5	1	2mm	RL	98	1	Normal	GIT	Yes	Yes	Invasive	NA	Yes	Yes	7.04	1	30	25	8.8	-20.4
142	1093270	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Pallor	Renal	Yes	Yes	Non Inavsive	HFNC	Yes	Yes	7.36	2	32	54	19.6	-6.6
143	1104802	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	102.4	3	Pallor	MODS	Yes	Yes	Non Inavsive	HFNC	Yes	Yes	7.28	1	39	37	17.4	-9.3
144	1116690	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	100.8	2	Normal	Infectious	Yes	No	NA	NA	Yes	Yes	7.34	1	30	52	20.4	-5.4
145	1128996	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Icterus	Infectious	Yes	No	NA	NA	Yes	Yes	7.36	2	37	51	21.5	-4.1
146	1198647	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	96	1	Petechie	Infectious	Yes	Yes	Non Inavsive	NIV	Yes	Yes	7.3	1	32	53	18.8	-6
147	99641	Normal	Good	Good	Warm	3	4	5	12	2	2mm	RL	101	2	erythmatous	CVS	Yes	Yes	Non Inavsive	HFNC	No	No	7.4	2	34	58	24.4	-1.2
148	1200396	Normal	Good	Good	Warm	3	3	5	11	2	2mm	RL	97	1	Petechie	Infectious	Yes	No	NA	NA	No	No	7.3	1	34	100	24.2	-1.2
149	1200286	Hypotension	Good	Poor	Cool	3	3	4	10	2	2mm	RL	96	1	erythmatous	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.11	1	30	28	8.4	-19.5
150	1195916	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	Yes	No	NA	NA	Yes	Yes	7.36	2	32	54	19.6	-6.6
151	1200417	Hypotension	Good	Poor	Cool	2	0	2	4	1	2mm	RL	101	2	Pallor	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7	1	24	54	4.6	-27.4
152	1200364	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	Yes	Non Inavsive	NIV	No	Yes	7.34	1	30	58	16.2	-10.2
153	1201136	Hypotension	Good	Poor	Cool	3	3	5	11	2	2mm	RL	97	1	Petechie	Infectious	Yes	Yes	Invasive	NA	Yes	Yes	7.01	1	28	50	10.8	-18.4
154	1204209	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.36	2	37	51	21.5	-4.1
155	1203271	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	98	1	Petechie	Infectious	Yes	No	NA	NA	No	Yes	7.4	2	32	65	27	-0.8
156	1205468	Normal	Good	Good	Warm	4	5	6	15	3	2mm	RL	97	1	Petechie	Infectious	Yes	No	NA	NA	Yes	Yes	7.33	1	30	25	16.2	-1.6

S no.	MRD No.	Lac	lactate gp	Hb (D1)	Hb (D3)	Hb (D7)	MPV/ PLT 1	MPV/ PLT 2	MPV/ PLT 3	plt	Platelet (D1)	Platelet (D3)	Platelet(d7)	Diff Platelet (D3)	Diff Platelet (d7)	Diff Platelet (D3-d7)	MPV (D1)	MPV (D3)	MPV (D7)	Diff MPV (D3)	Diff MPV (D7)	Diff MPV (D3-D7)	MPV	MPV GROUP	AB MPV	TLC (D1)	RDW (D1)	RDW (D3)	RDW (D7)	Na	K	BU
105	1248333	2	2	7.9	8.4	-	1.52	0.61	-	1.00	5	22	-	17	-	-	7.6	13.4	-	5.8	-	-	2	3	-	2.7	16.2	15.4	-	139	4.11	12
106	1249543	8.4	2	10.5	-	-	0.06	-	-	3.00	150	-	-	-	-	-	9.3	-	-	-	-	-	2	3	-	18.5	20.1	-	-	158	4.13	34
107	1250723	4.6	2	8.9	8.1	-	0.08	0.08	-	3.00	120	118	-	-2	-	-	9.2	9.2	-	0	-	-	2	2	-	4.4	22.1	21.7	-	142	3.33	23
108	1252419	3.4	2	8.5	8.9	9.6	0.37	0.26	0.20	1.00	30	46	60	16	30	14	11	12	12.1	1	1.1	0.1	2	3	3	4.4	19.8	19.4	20.4	141	2.75	26
109	1252579	7.8	2	10.3	-	-	0.23	-	-	1.00	38	-	-	-	-	-	8.8	-	-	-	-	-	2	3	-	18.2	23.8	-	-	139	4.31	32
110	1256942	1.2	1	5.9	7.7	-	0.05	0.06	-	3.00	150	160	-	10	-	-	7.7	8.9	-	1.2	-	-	2	2	-	17.3	18.9	22.8	-	144	4.8	51
111	1258361	5.6	2	13.1	11.6	11.6	0.08	0.09	0.21	3.00	147	128	54	-19	-93	-74	11.8	11.9	11.1	0.1	-0.7	-0.8	3	3	2	25.3	17.4	16.2	16.5	124	6.6	126
112	1258919	1.2	1	9.5	8.5	7.3	1.73	0.81	0.09	1.00	6	14	111	8	105	97	10.4	11.3	9.9	0.9	-0.5	-1.4	2	2	2	5.1	14.2	15	15.3	134	3.75	74
113	1259849	8.4	2	10.2	-	-	0.51	-	-	1.00	21	-	-	-	-	-	10.8	-	-	-	-	-	2	3	-	17.8	16.2	-	-	142	3.5	23
114	1260733	2.4	2	3.4	7.64	9.6	0.06	0.04	0.05	3.00	115	224	162	109	47	-62	7	8.4	8.4	1.4	1.4	0	1	2	2	8.2	16.3	20	19.7	146	5.44	37
115	11902470	2.2	2	11.4	11.7	10.6	0.17	0.06	0.08	2.00	60	146	120	86	60	-26	10.4	9.1	10.1	-1.3	-0.3	1	2	2	2	14.9	15.9	16.5	18.1	144	4.74	42
116	90783	4.2	2	10.6	10	9.3	0.66	0.27	0.10	1.00	12	42	100	30	88	58	7.9	11.3	10	3.4	2.1	-1.3	2	2	2	3.4	15.6	15.9	16	140	4.53	22
117	1234220	2.4	2	7.9	13	9.3	0.08	0.02	0.05	2.00	100	287	144	187	44	-143	7.7	6.7	6.6	-1	-1.1	-0.1	2	1	1	4.3	18.9	28.1	28.6	145	3.58	29
118	1247940	1.2	1	9.2	8.9	8.4	0.40	0.26	0.13	1.00	30	54	90	24	60	36	12.1	13.9	12.1	1.8	0	-1.8	3	3	3	6.9	13.6	14.1	14.3	124	3.63	59
119	1183270	14.4	2	7.9	13.3	11.7	0.72	0.38	0.52	1.00	12	30	20	18	8	-10	8.6	11.5	10.4	2.9	1.8	-1.1	2	2	2	3.5	14.1	17.4	19.2	129	4.54	43
120	1192596	2.4	2	15.2	9.5	9.6	0.37	0.13	0.07	1.00	29	88	153	59	124	65	10.8	11.3	10.9	0.5	0.1	-0.4	2	2	2	6.5	15.9	15.9	15.6	136	4.7	15
121	1225106	2.4	2	6.6	9.3	9.8	0.08	0.17	0.12	3.00	128	68	106	-60	-22	38	10.5	11.4	12.7	0.9	2.2	1.3	2	2	3	6.5	20.1	18.3	16.7	142	3.48	30
122	1193458	1.2	1	14.6	12.5	-	0.29	0.13	-	1.00	33	66	-	33	-	-	9.5	8.9	-	-0.6	-	-	2	2	-	7.6	14.3	14.2	-	136	5.09	27
123	1194395	3.4	2	14.1	9.5	-	0.67	0.18	-	1.00	14	46	-	32	-	-	9.4	8.4	-	-1	-	-	2	2	-	6	14.6	14.8	-	139	4.75	22
124	1195150	8.8	2	13.1	8.3	-	0.19	1.15	-	2.00	51	10	-	-41	-	-	9.9	11.5	-	1.6	-	-	2	2	-	4.5	14.3	15.3	-	134	4.13	72
125	1195251	5.6	2	16.7	14.1	11.3	0.44	0.36	0.08	1.00	24	30	146	6	122	116	10.6	10.8	11.2	0.2	0.6	0.4	2	2	2	5.1	16.7	17.1	16.5	128	4.68	33
126	1256842	2	2	5.9	7.7	-	0.05	0.06	-	3.00	150	160	-	10	-	-	7.7	8.9	-	1.2	-	-	2	2	-	17.3	18.9	20.4	-	144	4.8	51
127	1195266	2.1	2	11.5	9.7	10.2	0.44	0.37	0.28	1.00	19	22	30	3	11	8	8.4	8.2	8.3	-0.2	-0.1	0.1	2	2	2	4.4	35.9	36.3	36.3	133	3.67	113
128	1196674	14.4	2	7.9	10.6	10.6	0.20	0.12	0.10	1.00	46	90	90	44	44	0	9.3	10.9	8.9	1.6	-0.4	-2	2	2	2	9.7	15.6	17.1	17.1	135	4.02	92
129	1141812	4	2	9.4	8.5	11.5	0.05	0.05	0.08	3.00	150	183	115	33	-35	-68	8.2	9.9	9.5	1.7	1.3	-0.4	2	2	2	3.7	24	23.8	22.3	140	3.43	6
130	1197572	1.2	1	13.9	11.7	-	0.07	0.06	-	3.00	148	155	-	7	-	-	10.8	9.9	-	-0.9	-	-	2	2	-	4.3	17.4	17	-	141	4.83	8
131	1210118	2	2	8.9	8	9.4	0.08	0.10	0.03	3.00	111	97	271	-14	160	174	8.9	9.3	9.4	0.4	0.5	0.1	2	2	2	22.5	15.3	15.5	15.1	144	4.28	17
132	1361590	1.7	1	9.2	9.7	9.3	0.45	0.28	0.05	1.00	28	42	218	14	190	176	12.5	11.8	9.9	-0.7	-2.6	-1.9	3	3	2	10.9	15.3	15	15.1	138	4.94	67
133	1364518	2	2	7.91	-	-	0.07	-	-	3.00	150	-	-	-	-	-	10.5	-	-	-	-	-	2	3	-	22.8	15.9	-	-	138	4.24	13
134	1367195	4	2	3.8	9.8	9.8	0.07	0.09	0.07	3.00	120	128	132	8	12	4	8.8	11.1	9.4	2.3	0.6	-1.7	2	2	2	7.6	16.2	15	14.7	141	4.99	272
135	1172624	2	2	15.6	14.6	11.4	0.54	0.35	0.24	1.00	22	30	44	8	22	14	11.8	10.4	10.5	-1.4	-1.3	0.1	3	2	2	4.4	13.2	13.2	13.3	133	5.6	46
136	1172823	14.4	2	8.7	9.4	-	0.13	0.07	-	2.00	80	150	-	70	-	-	10.5	10.7	-	0.2	-	-	2	2	-	9.6	19.3	18.5	-	141	4.66	14
137	1174724	3.4	2	13.3	11.6	11.2	0.42	0.25	0.08	1.00	26	44	122	18	96	78	10.9	10.8	10	-0.1	-0.9	-0.8	2	2	2	6.3	19.8	18.6	19.1	136	4.43	16
138	1357708	1.2	1	8	-	-	0.09	-	-	3.00	130	-	-	-	-	-	12	-	-	-	-	-	3	3	-	1.1	16.3	-	-	141	4.51	29
139	1356831	4	2	9.3	-	-	0.15	-	-	2.00	85	-	-	-	-	-	12.9	-	-	-	-	-	3	3	-	10.12	15.9	-	-	140	3.09	18
140	1198636	12	2	6.3	9.9	9.3	0.40	0.07	0.06	1.00	27	138	151	111	124	13	10.7	9.7	8.8	-1	-1.9	-0.9	2	2	2	15.4	23.7	17.5	18.3	151	5.5	67
141	1051650	10	2	8.2	7.5	5.1	0.40	0.39	0.31	1.00	22	26	36	4	14	10	8.8	10.1	11.1	1.3	2.3	1	2	2	2	9.1	16.2	16.6	16.9	193	4.29	142
142	1093270	3.5	2	7.5	6.2	5.4	0.26	0.16	0.06	1.00	38	56	162	18	124	106	9.9	8.9	9.1	-1	-0.8	0.2	2	2	2	5.2	17.6	17	16.2	133	3.25	45
143	1104802	1	1	9.8	9	9.3	0.41	0.16	0.09	1.00	30	80	150	50	120	70	12.4	12.6	14.2	0.2	1.8	1.6	3	3	3	4.5	14.1	14.6	15.1	131	4.87	49
144	1116690	1	1	8.8	8.8	-	0.29	0.19	-	1.00	42	60	-	18	-	-	12.2	11.1	-	-1.1	-	-	3	2	-	14.1	14.7	15.2	-	136	5.14	187
145	1128996	2	2	10.1	7.5	8	0.10	0.06	0.06	3.00	110	150	140	40	30	-10	10.9	8.7	8.3	-2.2	-2.6	-0.4	2	2	2	15.9	17.1	17.3	15.5	132	4.05	69
146	1198647	3.4	2	11.6	11	11.2	0.22	0.28	0.15	1.00	40	33	70	-7	30	37	8.9	9.3	10.8	0.4	1.9	1.5	2	2	2	14.4	13.4	13.2	13.3	138	2.89	8
147	99641	2	2	9.2	7.1	10.7	0.13	0.16	0.12	2.00	75	70	86	-5	11	16	9.9	11.3	9.9	1.4	0	-1.4	2	2	2	7.7	23.5	22.8	22.7	136	3.61	16
148	1200396	3.4	2	15.9	14.4	-	0.10	0.08	-	3.00	104	127	-	23	-	-	10	9.7	-	-0.3	-	-	2	2	-	4.4	14.8	15.2	-	140	5.23	14
149	1200286	14.4	2	16.2	14	-	0.49	0.54	-	1.00	20	20	-	0	-	-	9.7	10.8	-	1.1	-	-	2	2	-	4.7	15.6	15.2	-	139	4.75	13
150	1195916	3.5	2	15.7	10.3	10.7	0.73	0.14	0.06	1.00	12	65	149	53	137	84	8.8	9.4	8.9	0.6	0.1	-0.5	2	2	2	6.4	15.4	14.7	14.9	134	4.1	37
151	1200417	8.8	2	8.3	6.7	9.9	0.23	0.27	0.11	1.00	46	40	85	-6	39	45	10.4	10.6	9.6	0.2	-0.8	-1	2	2	2	9.8	34.3	35.2	37.5	133	5.4	69
152	1200364	2.7	2	10.5	9.2	9.5	0.53	0.05	0.07	1.00	20	168	140	148	120	-28	10.6	8.5	10.4	-2.1	-0.2	1.9	2	2	2	17.7	13.1	14.4	13.6	134	3.8	59
153	1201136	8.4	2	5.4	8.7	9	0.06	0.09	0.17	3.00	156	120	70	-36	-86	-50	9.2	11.2	11.6	2	2.4	0.4	2	2	2	36.6	23.4	14.7	17.1	135	4.38	91
154	1204209	2	2	11.5	9.1	-	0.33	0.18	-	1.00	28	53	-	25	-	-	9.2	9.3	-	0.1	-	-	2	2	-	5.3	18.5	19.6	-	139	6.08	48
155	1203271	2	2	12.8	11.2	-	0.61	0.22	-	1.00	16	50	-	34	-	-	9.8	11.1	-	1.3	-	-	2	2	-	6.1	14.5	15	-	141	3.9	16
156	1205468	1.7	1	13.2	10.4	9.9	0.18	0.11	0.10	2.00	50	69	99	19	49	30	9	7.7	9.6	-1.3	0.6	1.9	2	2	2	11.7	14.3	14.5	14.6	141	4.05	34

S no.	MRD No.	Creat	LDH	SGOT	SGPT	CRP	crp gp	Covid Ab	BLOOD CULTURE	URINE CULTURE	BAL CULTURE	RBS	Blood Product Transfusion	PRISM	PRISM GP	Duration Of Stay	Duration Of Stay GP	Outcome
105	1248333	0.44	492	75	37	0.54	1	-	No growth	No growth	No growth	20	PRBC,RDP	17	2	3	2	Shifted
106	1249543	0.65	-	1444	926	24.4	2	-	No growth	No growth	No growth	20	NOT DONE	27	2	7	2	Expired
107	1250723	0.44	-	64	22	20.2	2	-	No growth	No growth	No growth	88	PRBC,RDP	12	2	6	2	Shifted
108	1252419	0.49	475	76	63	73.26	2	-	Salmonella typhi	No growth	No growth	40	RDP	7	1	7	2	Shifted
109	1252579	0.52	-	50	15	89.68	2	-	No growth	No growth	No growth	20	NOT DONE	34	2	2	1	Expired
110	1256942	0.48	-	115	185	26.64	2	-	No growth	No growth	No growth	98	PRBC	10	1	3	2	Shifted
111	1258361	1.79	-	4870	3765	8.37	2	377	No growth	E.Coli	No growth	40	NOT DONE	14	2	8	3	Shifted
112	1258919	0.62	-	342	66	155.52	2	2500	Salmonella paratyphi	No growth	No growth	78	PRBC,RDP	3	1	7	2	Shifted
113	1259849	0.29	-	-	-	100.46	2	2500	No growth	No growth	No growth	20	PRBC,FFP,RDP	27	2	2	1	Expired
114	1260733	0.56	1524	183	104	25.94	2	-	Pseudomonas aeruginosa	pseudomonas aeruginosa	Pseudomonas Aeruginosa	30	PRBC,FFP,RDP	37	2	48	4	Shifted
115	11902470	1.29	1250	5637	5699	2.74	1	-	No growth	No growth	No growth	58	NOT DONE	7	1	6	2	Shifted
116	90783	0.58	-	3134	1032	1.74	1	-	No growth	No growth	No growth	90	RDP	18	2	5	2	Shifted
117	1234220	0.18	1152	447	108	8.66	2	-	No growth	No growth	No growth	26	PRBC,RDP,FFP	28	2	11	3	Expired
118	1247940	0.75	-	685	338	84.45	2	0.564	No growth	No growth	No growth	38	NOT DONE	14	2	4	2	Shifted
119	1183270	0.63	1264	3529	865	1.26	1	-	No growth	No growth	No growth	30	PRBC,RDP,FFP	48	2	9	3	Expired
120	1192596	0.62	1500	454	183	12.23	2	-	No growth	No growth	No growth	38	RDP	13	2	4	2	Shifted
121	1225106	0.31	-	130	54	4.8	1	-	No growth	No growth	No growth	18	PRBC	18	2	6	2	Shifted
122	1193458	0.48	484	288	149	1.4	1	-	No growth	No growth	No growth	78	NOT DONE	4	1	3	2	Shifted
123	1194395	0.51	450	124	41	0.91	1	-	No growth	No growth	No growth	80	RDP	17	2	3	2	Shifted
124	1195150	0.65	1007	74	42	334.94	2	-	MRSA	No growth	No growth	24	PRBC,RDP,FFP	27	2	3	2	Expired
125	1195251	0.57	-	540	244	7.08	2	-	No growth	No growth	No growth	90	RDP	11	2	5	2	Shifted
126	1256842	0.48	-	118	185	26.64	2	-	No growth	No growth	No growth	98	PRBC	10	1	3	2	Shifted
127	1195266	0.13	-	201	74	80.4	2	-	No growth	No growth	No growth	38	RDP	18	2	5	2	Shifted
128	1196674	10.2	1524	8231	3346	23.99	2	-	No growth	No growth	Klebsiella Aeruginosa	20	PRBC,RDP,FFP	37	2	15	4	DAMA
129	1141812	0.35	-	202	84	11.38	2	-	No growth	No growth	Klebsiella Aeruginosa	25	NOT DONE	26	2	7	2	Expired
130	1197572	0.37	-	58	35	36.6	2	-	No growth	No growth	No growth	110	NOT DONE	7	1	3	2	Shifted
131	1210118	0.17	-	1523	2000	50	2	2000	No growth	No growth	No growth	90	NOT DONE	10	1	4	2	Shifted
132	1361590	0.56	-	193	88	209.27	2	2500	Elizabethkingia meningoseptica	No growth	No growth	58	RDP	16	2	7	2	Shifted
133	1364518	0.45	-	55	34	135.62	2	-	Streptococcus agalactiae	No growth	No growth	188	NOT DONE	7	1	5	2	Shifted
134	1367195	15.18	353	20	8	1.84	1	-	Klebsiella pneumoniae	No growth	No growth	180	PRBC,RDP	16	2	30	4	DAMA
135	1172624	0.71	-	212	82	1.5	1	-	No growth	No growth	No growth	90	NOT DONE	7	1	4	2	Shifted
136	1172823	0.23	-	73	12	17.11	2	-	No growth	No growth	No growth	22	NOT DONE	27	2	3	2	Expired
137	1174724	0.43	-	646	245	1.65	1	-	No growth	No growth	No growth	94	NOT DONE	7	1	4	2	Shifted
138	1357708	0.35	-	210	78	358.58	2	-	No growth	No growth	No growth	97	NOT DONE	36	2	3	2	Expired
139	1356831	0.2	-	550	234	117.83	2	2500	No growth	No growth	No growth	110	NOT DONE	34	2	1	1	Expired
140	1198636	0.4	423	4041	4579	24.69	2	-	No growth	No growth	No growth	48	PRBC,RDP,FFP	28	2	12	3	Shifted
141	1051650	2.43	-	2090	972	232.22	2	-	No growth	No growth	Klebsiella Aeruginosa	20	RDP	12	2	12	3	Expired
142	1093270	0.28	-	-	-	25.84	2	-	No growth	E.Coli	No growth	88	PRBC	17	2	6	2	Shifted
143	1104802	0.52	282	54	28	322.35	2	-	No growth	No growth	No growth	63	RDP	12	2	5	2	Shifted
144	1116690	5.09	-	111	52	87.76	2	10.72	No growth	No growth	No growth	74	RDP	12	2	4	2	Shifted
145	1128996	0.92	-	74	54	171.32	2	349	MRSA	No growth	No growth	128	PRBC	18	2	10	3	Shifted
146	1198647	0.24	-	99	26	1.04	1	-	No growth	No growth	No growth	90	PRBC,FFP,RDP	18	2	4	2	Shifted
147	99641	0.9	1254	4859	205	148.81	2	1250	No growth	No growth	No growth	84	PRBC	16	2	4	2	Shifted
148	1200396	0.66	-	155	95	25.15	2	123	No growth	No growth	No growth	120	NOT DONE	7	1	3	2	Shifted
149	1200286	0.32	-	209	59	1.4	1	-	No growth	No growth	No growth	145	RDP,FFP	18	2	2	1	Expired
150	1195916	0.54	-	101	49	1.91	1	-	No growth	No growth	No growth	58	RDP	7	1	4	2	Shifted
151	1200417	1.08	1540	320	99	325.47	2	-	No growth	No growth	Klebsiella Aeruginosa	30	PRBC	18	2	11	3	Shifted
152	1200364	0.9	-	2254	1821	14.58	2	-	No growth	No growth	No growth	58	RDP	16	2	6	2	Shifted
153	1201136	0.63	-	382	105	24.8	2	-	No growth	No growth	Acinetobacter baumanni	90	PRBC,RDP,FFP	28	2	17	4	Expired
154	1204209	0.87	-	1090	317	13.8	2	-	No growth	No growth	No growth	94	NOT DONE	5	1	3	2	Shifted
155	1203271	0.3	-	273	334	1.4	1	-	No growth	No growth	No growth	54	RDP	6	1	3	2	Shifted
156	1205468	0.38	-	10214	3529	46.76	2	-	No growth	No growth	No growth	108	NOT DONE	7	1	5	2	Shifted

Baba Farid University
of Health Sciences
Sadiq Road
Faridkot-151 203 (Pb). INDIA.
Phone : 01639-256232,256236
Tele/Fax : 01639-256235
Email – Examination@bfuhs.ac.in

No. BFUHS/2K21p-TH/ 207

Date 8/11/2021

The Principal,
DMC, Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.10.2021 has approved the plan of thesis of **Navneet Kaur**, a student of your college for **MD Paediatrics** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
Mean platelet volume (mpv) as a prognostic marker in critically ill patients admitted to picu.

Supervisor
Dr. Puneet Aulakh Pooni
Prof. & Head,
Dept. of Paediatrics,
DMCH, Ludhiana.

Co-Supervisor

Dr. Shruti Kakkar
Asst. Prof.,
Dept. of Paediatrics,
DMCH, Ludhiana.

Dr. Vikram Narang
Assoc. Prof.,
Dept. of Pathology,
DMCH, Ludhiana.

The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

SPSingh

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

87. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*
88. *The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

DAYANAND MEDICAL COLLEGE & HOSPITAL
LUDHIANA

Ref. No: DMCH/ Dated :

TO WHOM IT MAY CONCERN

Certified that the study entitled "MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU" involves only such investigations and / or treatment, which are relevant in the management of patients and has no extra cost implications to the patient.

Name of candidate: Dr. Navneet Kaur

Supervisor: Dr. Puneet Aulakh Pooni

Co-Supervisor(s): Dr. Shruti Kakkar

Dr. Vikram Narang

Signature of candidate

Signature of Supervisor

MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED IN

PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF MEDICINE

IN

PEDIATRICS

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

MARCH, 2021

DR. NAVNEET KAUR

DEPARTMENT OF PEDIATRICS
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU
For the degree of	MD PEDIATRICS
Name of the candidate	Dr. Navneet Kaur
Supervisor	Dr. Puneet Aulakh Pooni, Professor & Head, Department of Pediatrics, DMCH, Ludhiana
Co-Supervisor	Dr. Shruti Kakkar, Assistant Professor, Department of Pediatrics, DMCH, Ludhiana Dr. Vikram Narang, Associate Professor, Department of Pathology, DMCH, Ludhiana
Institution	Dayanand Medical College and Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Mean platelet volume (MPV) is the measurement of the size of the platelet and is included as part of routine test CBC. In many studies it has been found that increased MPV in first 72 hours is associated with increased mortality in critically ill patients. Since MPV is routinely done test in critically ill patients, therefore subsequent values following admission may be useful in predicting the outcome of the patient.

Aims and Objectives: To study the role of mean platelet volume as a prognostic marker in critically ill patients admitted in PICU of Dayanand Medical College and Hospital, Ludhiana.

Materials and Methods: Prospective observational study in 10 bedded level 3 PICU .Patients with age group >1 month to 18 years with thrombocytopenia at time of admission will be enrolled in the study. Outcome in relation to morbidity and mortality will be noted .Appropriate statistical methods will be used to analyze the result.

Clinical significance: This study will help us to asses the role of MPV, recovery of the platelets in relation to the outcome of critically ill patients. Single MPV value may not be useful but subsequent values may help predict the outcome[2]. An increased MPV suggests that the infection is uncontrolled and is related to disease severity, findings of which will be verified in our study.

Keywords: Mean platelet volume, Platelet indices, Pediatric intensive care, Critically ill patients, Mortality.

(Signature) Candidate	(Signature) Co-supervisor	(Signature) Co-supervisor	(Signature) Supervisor	(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU"** exist in the Department of Pediatrics at Dayanand Medical College and Hospital, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis are genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

Dr. Puneet Aulakh Pooni
Professor & Head
Department of Pediatrics
DMCH, Ludhiana

Co-Supervisor

Dr. Shruti Kakkar
Assistant Professor
Department of Pediatrics
DMCH, Ludhiana

Dr. Vikram Narang
Associate professor
Department of Pathology
DMCH, Ludhiana

Head of the Department

Dr. Puneet Aulakh Pooni
Professor & Head
Department of Pediatrics
DMCH, Ludhiana

Place : Ludhiana

Date : 31st March, 2021

APPROVAL PROFORMA
BY
RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Navneet Kaur
Department	Pediatrics
Topic of Thesis	MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU
Likely date of appearing in PG examination	MAY 2023
Date of enrollment	JULY 25, 2020
Name of Head of Department	Dr. Puneet Aulakh Pooni
1) Supervisor **2) Co-Supervisor(s)**	Dr. Puneet Aulakh Pooni Dr. Shruti Kakkar Dr. Vikram Narang
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Ramit Mahajan (Associate Professor, Gastroenterology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal & Professor & Head, Cardiology)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES,

FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR

DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Dr. Navneet Kaur H No. 600 Street No. 17 Guru Gobind Singh Nagar backside new sabjimandi , Hoshiarpur-146001
2	NAME OF THE INSTITUTE	Dayanand Medical College and Hospital,Ludhiana
3	COURSE OF STUDY AND SUBJECT	MD Pediatrics
4	DATE OF ADMISSION OF COURSE	25-07-2020
5	TITLE OF THE TOPIC	MEAN PLATELET VOLUME (MPV) AS A PROGNOSTIC MARKER IN CRITICALLY ILL PATIENTS ADMITTED TO PICU

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Platelets are the smallest but most reactive blood component. They are the first to be involved in fibrosis and maintenance of normal hemostasis. Many studies have provided evidence regarding role of MPV in many pathological conditions like cardiovascular diseases, respiratory diseases, crohn's disease, diabetes mellitus, rheumatoid arthritis, and many neoplastic diseases. The aim of the current study is to access the role of MPV as a biomarker in various inflammatory conditions.

Mean platelet volume (MPV) is the measurement of the size of the platelet and is included as part of routine test CBC.In many studies it has been found that increased MPV in first 72 hours is associated with increased mortality in critically ill patients[1]. Since MPV is routinely done test in critically ill patients, therefore subsequent values following admission may be useful in predicting the outcome of the patient[2].

Platelets are the first of all the cells to accumulate at the site of injury, where they show pseudopodia formation, change their shape , release cytoplasmic granules and start aggregating. This is activated by various factors like PAF, TXA2,ADP and inflammatory cytokines like IL-1, IL-6, TNF alpha. Thus platelets are the cells that initiate fibrosis and inflammatory processes[3]. Mean platelet volume is a simple measure of platelet size that can detect abnormal function and activity of platelets.MPV has been normally done now a days in all critically ill patients. Increased MPV means more platelet activity and excessive secretions of mediators.

The average size of the platelets is larger when the platelets are being made at a higher rates, Therefore MPV test can be used to make inference about the production and destruction of platelets in bone marrow.

Conditions associated with decreased MPV :

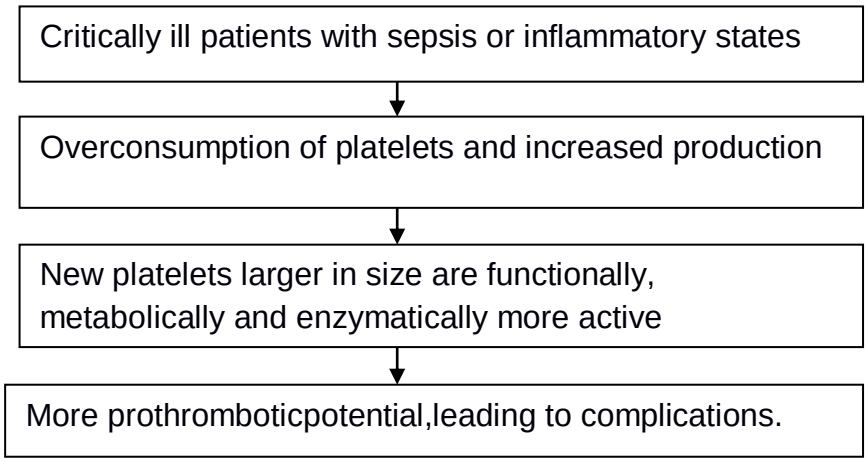
- Hypersplenism
- Cytotoxic chemotherapy
- Iron deficiency anemia
- Aplastic anemia
- Acquired immunodeficiency syndrome
- Crohn's disease
- Ulcerative colitis

Conditions associated with increased MPV:

- Immune thrombocytopenia
- Myeloproliferative disorders
- Post splenectomy
- Diabetes mellitus
- Thrombocytopenia secondary to sepsis
- Myocardial infarction
- Respiratory diseases

Critically ill patients usually have changes in platelet function and counts that have been studied in previous studies

Increased MPV in first 72hours of hospital admission with a marked rise in MPV in non-survivors than in survivors is found in septic inflammatory conditions in adults. Besides,the change in MPV after 72hours is found to be an independent risk factor of mortality[4].


Critically ill patients with sepsis or inflammatory states
Overconsumption of platelets and increased production
New platelets larger in size are functionally, metabolically and enzymatically more active
More prothromboticpotential,leading to complications.

It has been seen that platelet count acts an an independent risk factor in critically ill patients[5]. In recent studies, it has been noted that platelet indices are related to prognosis of the patient and severity of the disease.It was found that rise in MPV was related with rise in

interleukin -6 and c-reactive protein in premature infants with sepsis and further rise was related to increased severity.

In patients with cirrhosis MPV was accurate diagnostic marker for ascetic fluid infection. It has been noted that patients with ST segment elevated myocardial infarction had higher MPV and PDW values. Thus all these evidences shows that platelet indices can be an important predictors for the critically ill patients.

The study of MPV can provide important information regarding the course and prognosis of the disease .From clinical point of view, I would be useful to establish an cut off value for MPV indicating the intensity of inflammatory process , increased risk of thrombotic events , increased risk of death and patient's response to the treatment.

Moreover, MPV is available worldwide, it is a simple investigation,part of CBC which is routinely done in all critically ill patients and is cost effective. We do not need any new or extra investigation to be done for this study. Therefore it can be used as a potential prognostic marker in the outcome of critically ill children admitted to Pediatric ICU. Also there are studies showing raised MPV and their relation with poor prognosis of the critically ill adult patients but there are very few studies done in children regarding this hence the need of the study.

6.2 REVIEW OF LITERATURE

Platelets are formed during thrombocytopoiesis, They are non-nucleated. Thrombopoietin plays a major role in proliferation and differentiation of megakaryocytes and platelet formation. When platelets are activated, they form cytoplasmic processes like pseudopodia, called proplatelets. Mature proplatelets are released to the bone marrow. The platelets are involved in an inflammatory response and is associated with release of cytokines and various chemokines. These factors attract leukocytes and help in adhesion to endothelium at the site of injury. During this process, platelets may interact with leukocytes forming platelet-leukocyte aggregates.

Mean platelet volume is the measure of platelet size that predicts the platelet function and activity.NormalMPV ranges from 7.5 – 12.0 fl.Normally, he percentage of large platelets is 0.2-5.0% of whole platelet population. Platelets with MPV>15 fl are considered large platelets whereas platelets with MPV>20fl are considered giant platelets. Physiologically MPV is inversely related to platelet count which is associated with hemostasis and preservation of constant platelet mass.

Platelets with increased MPV (>15fl) are usually younger and have high reactivity.

<u>Conditions associated with decreased MPV:</u>

- Hypersplenism
- Cytotoxic chemotherapy
- Iron deficiency anemia
- Aplastic anemia
- Acquired immunodeficiency syndrome
- Crohn’s disease
- Ulcerative colitis

<u>Conditions associated with increased MPV:</u>

- Immune thrombocytopenia
- Myeloproliferative disorders
- Post splenectomy
- Diabetes mellitus
- Thrombocytopenia secondary to sepsis
- Myocardial infarction
- Respiratory diseases

Differences in platelet size have been observed in respiratory diseases, associated with inflammatory condition. In active tuberculosis, cellular body immunity is stimulated. Bacillus-activated macrophages and lymphocytes produce such cytokines as IL-6 or TNF-α, which affect maturation of megakaryocytes and platelet release. Therefore, reactive thrombocytosis is observed in tuberculosis, in which increased platelet count and size are associated with inflammation intensity. Contrary to the stable form, during disease exacerbation, the MPV is significantly reduced. The decrease in MPV can be related to the formation of microthrombi in tuberculous cavities, which are to inhibit the disease spread and are considered a defense reaction. It has been suggested that MPV can be a negative marker of the acute phase of inflammation, and a decrease in MPV can be caused by increased platelet count and their accelerated wear.

In various studies, it is found that there is a significant increase in MPV in patients with chronic renal failure treated with recombinant human erythropoietin. The authors suggest that HuEPO stimulation causes a release of young thrombocytes that are larger and undergo activation and aggregation more easily, leading to higher risk of blood clot formation. The researchers excluded the effect of dialysis and aspirin administration on MPV, and even the increase in MPV was not EPO dose-dependent.

Many studies showed MPV to be a reliable marker of the crohn's disease activity, but its sensitivity is too low to differentiate moderate from severe form of the disease. On the other hand, the increased activity of ulcerative colitis is associated with MPV decrease.

The diagnostic usefulness of MPV was also assessed in the course of juvenile systemic lupus erythematous (SLE). Study results showed higher MPC levels in pediatric patients as compared to the control. The studies showed higher MPV levels in children with SLE, although contrary to other researchers, they reported a significant correlation between MPV and SLE advancements and even suggested possible application of MPV as an additional marker, apart from ds-DNA and C3.

Contrary to the results obtained in the group of children with juvenile SLE, adult patients with active disease had a statistically significant decrease in MPV values as compared to inactive SLE. Researchers suggest that this is due to the consumption of large active blood platelets during inflammation, although they also indicate that this is only a theory to be further confirmed by clinical research.

It is seen that large thrombocytes show greater amount of cell granules, have higher expression of adhesion molecules, and have faster activation, which results in platelet hyperactivity and thus increased risk of clot formation.An increased MPV is suggestive of increased platelet activity and increased secretion of mediators[1].Increased MPV is suggestive of large platelet size which contains more granules and prothomboticmaterial.In inflammatory conditions there is overconsumption of platelets which leads to increased production of new platelets, which are larger in size . These young platelets are functionally,metabolically and enzymatically more active . These young platelets contains larger amount of thromboxane A2 and have increased expression of procoagulant surface proteins which leads to increased prothromboticstates[6].

In various studies there has been a strong correlation between high MPV and active inflammatory disease which suggests nature of MPV as an inflammatory marker and reflects both prothrombotic and proinflammatory nature of MPV.There has been correlation between increased procalcitonin levels and MPV elevation in critically ill children which indicates that an elevated MPV value in pediatric ICU can be a marker of early sepsis.On the other hand, platelet count trend shows no significant difference between patients with high MPV and with normal MPV ,this suggests that MPV behaves independently from platelet count in critically ill children[7]. There is thrombocytopenia in patients with sepsis during first 4 days of hospital admission, with an inverse relationship between MPV and platelet count[8,9].

In pediatric ICU patients, it is seen that high MPV is related to increased Procalcitonin levels which suggests that MPV can be a marker of sepsis but it has no significant relation with platelet count

.This explains the different pathophysiology of sepsis in pediatric and adult patients.In pediatric patients platelet responds to sepsis through increase in size rather than a significant change in platelet count[10,11]. It is seen that high MPV in initial 72 hours of hospital stay is seen in non-survivors than in survivors.Moreover ,the change in MPV after 72 hours is suggestive of an independent risk factor of mortality.Various studies shows the relationship between platelet indices and mortality and disease severity of the patient.It is seen that patients with low platelet count with high MPV and Platelet distribution width had higher mortality rates than those with normal platelet indices.Therefore, platelet indices can be prognostic marker in critically ill patients[12,13,14].

It is seen that there has been a relation between increased mortality and gradual increase in MPV after few days of hospital admission. Increasing MPV values is seen in non survivors than in survivors[15,16,17].

MPV has been an important marker in predicting mortality in patients with community acquired pneumonia and patients of myocardial infarction[18,19]. It is seen that single initial value of MPV may not be a useful prognostic marker of mortality in critically ill patients but repeated MPV values may be useful in predicting the mortality in critically ill patients[20,21].

6.3 AIMS AND OBJECTIVES OF THE STUDY

To study the role of mean platelet volume as a prognostic marker in critically ill patients.

7. MATERIALS AND METHODS

It will be a prospectively observational study , will be carried out for a period of 1 year from 1st March 2021 to 28th Feb 2022in 10 bedded level 3 Pediatric ICU of Dayanand Medical College and Hospital, Ludhiana on patients with thrombocytopenia(platelet count <1.5 lakhs) at time of admission.

7.1 Source of Data

• The patients admitted to Pediatric ICU

• The patients with age group of more than 1 month to 18 years.

• The patients with thrombocytopenia (platelet count <1.5 lakhs) at time of admission will be enrolled in the study.

7.2 METHOD OF COLLECTION OF DATA

INCLUSION CRITERIA

Children from 1month to 18 years admitted to pediatric ICU with thrombocytopenia(platelet count <1.5 lakhs) at time of admission

EXCLUSION CRITERIA

1. Children with underlying malignancies.
2. Known case of ITP , Aplastic anemia and other hematological disorders.
3. Patients who expired within 24 hours of admission.

STUDY DURATION

1 year from 1st March 2021 to 28th Feb 2022.

OUTCOME

The relation of change in MPV, platelet count with mortality and morbidity in critically ill patients will be evaluated in the form of range, mean, standard deviation and relative frequencies.

STATISTICAL ANALYSIS

It is a prospective observational study. Cases admitted to pediatric ICU which will meet the inclusion criteria will be regularly followed up. Data will be described in terms of Range; mean +/- standard deviation (+/- SD), median, frequencies (Number of cases) and relative frequencies (percentages) as appropriate . All statistical calculations will be done

using (statistical package for social science) SPSS 21 version (SPSS Inc., Chicago, IL,USA) statistical program for Microsoft windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

It is prospective observational study. Routine investigations like CBC will be done and no special investigations or intervention will be done for the study

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Attached herewith

REFERENCES

1. Elmoneim AA,Alhojaili AR, Banjer NR, Abd El-MoneimES. Changes in mean platelet volume in critically ill children and its relation to other clinical and laboratory findings. Biomed Res. 2018;29:882-8.
2. Ye S, Zhang Y, Zhang C, Xu D. Are platelet volume indices related to mortality in hospitalized children on mechanical ventilation? J Int Med Res. 2018;46:1197-208.
3. Linke B, Schreiber Y, Picard-Willems B, Slattery P, NüsingRM, Harder S, Geisslinger G, Scholich K. Activated platelets induce an anti-inflammatory response of monocytes/macrophages through cross-regulation of PGE2 and cytokines. Mediators of Inflammation. 2017.
4. Kim CH, Kim SJ, Lee MJ, Kwon YE, Kim YL, Park KS, et al. An increase in mean platelet volume from baseline is associated with mortality in patients with severe sepsis or septic shock. PloS one. 2015;10:1-13.
5. Sezgi C, Taylan M, Kaya H, SelimogluSen H, Abakay O, Demir M, et al. Alterations in platelet count and mean platelet volume as predictors of patient outcome in the respiratory intensive care unit. ClinRespir J. 2015;9:403-8.
6. Tajarernmuang P, Phrommintikul A, Limsukon A, Pothirat C, Chittawatanarat K. The Role of Mean Platelet Volume as a Predictor of Mortality in Critically Ill Patients: A Systematic Review and Meta-Analysis. Crit Care Res Pract. 2016;2016:4370834.
7. Van der Lelie J, Von dem Borne AK. Increased mean platelet volume in septicaemia. Journal of clinical pathology. 1983;36:693-6.
8. Zdrojewski Z, Raszeja-Specht A, Kustosz J, Skibowska A, Rutkowski B. Evaluation of factors influencing platelet aggregation in patients with chronic glomerulonephritis (CGN). Przegladlekarski. 1996;53:434-8.

9. Karaman H, Karakukcu C, Kocer D. Can mean platelet volume serve as a marker for prostatitis?. International journal of medical sciences. 2013;10:1387-91.
10. Bath PM, Butterworth RJ. Platelet size: measurement, physiology and vascular disease. Blood coagulation & fibrinolysis: an international journal in haemostasis and thrombosis. 1996;7:157-61.
11. Taniguchi T, Takagi D, Takeyama N, Kitazawa Y, Tanaka T. Platelet size and function in septic rats: changes in the adenylate pool. Journal of Surgical Research. 1990;49:400-7.
12. Zhang S, Cui YL, Diao MY, Chen DC, Lin ZF. Use of platelet indices for determining illness severity and predicting prognosis in critically ill patients. Chinese medical journal. 2015;128:2012.
13. Zhang Z, Xu X, Ni H, Deng H. Platelet indices are novel predictors of hospital mortality in intensive care unit patients. Journal of critical care. 2014;29:885-e1-6.
14. ZampieriFG, Ranzani OT, Sabatoski V, de Souza HP, Barbeiro H, da Neto LM, et al. An increase in mean platelet volume after admission is associated with higher mortality in critically ill patients. Annals of intensive care. 2014;4:1-8.
15. Becchi C, Al Malyan M, Fabbri LP, Marsili M, Boddi V, Boncinelli S. Mean platelet volume trend in sepsis: is it a useful parameter?. Minerva anestesiologica. 2006;72:749-56.
16. Kitazawa T, Yoshino Y, Tatsuno K, Ota Y, Yotsuyanagi H. Changes in the mean platelet volume levels after bloodstream infection have prognostic value. Internal Medicine. 2013;52:1487-93.
17. Gao Y, Li Y, Yu X, Guo S, Ji X, Sun T, et al. The impact of various platelet indices as prognostic markers of septic shock. PLoS One. 2014;9:e103761.
18. İşgüder R, Ceylan G, Ağın H, NacaroğluHT, Korkmaz HA, Devrim İ, et al. Increased mean platelet volume in children with sepsis as a predictor of mortality. The Turkish journal of pediatrics. 2016;58:503-11.

19. Tekbas E, Kara AF, Ariturk Z, Cil H, Islamoglu Y, Elbey MA, et al. Mean platelet volume in predicting short-and long-term morbidity and mortality in patients with or without ST-segment elevation myocardial infarction. Scandinavian journal of clinical and laboratory investigation. 2011;71:613-9.
20. Kim CH, Kim SJ, Lee MJ, Kwon YE, Kim YL, Park KS, et al. An increase in mean platelet volume from baseline is associated with mortality in patients with severe sepsis or septic shock. PloS one. 2015;10:e0119437.

PROFORMA

S No.:

Name: **Age:** **Gender:**

MRD No.: **Admission No.:**

Date of admission: **Date of admission:**

(in hospital) **(in PICU)**

Chief Complaints:

HISTORY OF PRESENTING ILLNESS:

PAST HISTORY:

History of any bleeding: **YES/NO**

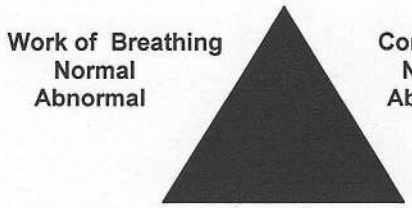
H/ o surgery: **YES/NO**

Anthropometry:

	Actual	Expected	Remarks
WEIGHT			
HEIGHT			
BMI			
HC(<5YEARS)			

Signature of Candidate **Signature of Supervisor**

Pediatric Assessment Triangle (PAT)



Detailed Clinical Assessment (ABCDE)

AIRWAY • Open & Stable • Open but Unstable • Obstruction	**BREATHING** *RR;..... /Min* *Efforts Normal Poor Increased Acidotic* *Air Entry Normal Poor Differential* *Auscultation None Stridor Wheeze Crackle* *SpO_2 (room air).....:.....* *SpO_2 (0n oxygen).....*	**CIRCULATION** HR...../Min Central Pulse Good Poor Peripheral Pulse Good Poor CFT .....BP..... Skin Temp Warm Cool ECG : Rhythm..... T-wave.....Others.....

DISABILITY *A V P U GCS E V M* *Pupil size.....Reaction.....:* *Motor Activity Normal & symmetrical* *Asymmetrical Seizures* *Posturing Flaccidity* *extrapyramidal movements* *Blood Sugar..... mg/dl*	**EXPOSURE** *Temp.....°F* *Color Normal Pallor Cyanosis Ashen Grey Skin* *Surface Findings Rash Abscess Pustules* *Cellulitis PetechiePurpura Ecchymosis* *Hemorrhagic nodules Mucosal ulcers* *Dermatosis Desquamation Edema* *Trauma / Others(Specify.....*

Any other important gross clinical finding:-

FINAL PHYSIOLOGICAL IMPRESSION ☐ Stable ☐ Respiratory Distress ☐ Respiratory Failure ☐ Compensated Shock ☐ Hypotensive Shock ☐ Cardiopulmonary Failure. ☐ Primary Brain/Metabolic Dysfunction	TRIANGLE CLASSIFICATION ☐ Level 1 (Resuscitation) ☐ Level 2 (Emergent) ☐ Level 3 (Urgent) ☐ Level 4 (Less Urgent) ☐ Level 5 (Non Urgent)

Clinical Findings:

Pallor: Y/N **Icterus: Y/N** **Lymphadenopathy: Y/N** **Edema: Y/N**

Cyanosis: Y/N **Hydration: Y/N**

Signature of Candidate **Signature of Supervisor**

- **Clinical findings:**

CNS		**GASTROINTESTINAL SYSTEM**	
CVS		**GENITOURINARY SYSTEM**	
RESPIRATORY SYSTEM		**MISCELLANEOUS**	

FINAL DIAGNOSIS:

ASSOCIATED DIAGNOSIS:

ANY COMPLICATION DURING PICU STAY: Y/ N

If Yes VAP/CRBSI/CAUTI:

TREATMENT

	Yes	No	Duration
• **NON INVASIVE VENTILATION- BiPAP/CPAP.**			
• **MECHANICAL VENTILATION-**			
• **VASOACTIVE MEDICATION-**			
Dopamine			
Dobutamine			
Epinephrine			
NorEpinephrine			

Signature of Candidate **Signature of Supervisor**

- **ANY TRANFUSION-** **Yes** **No** **No. of units**

  PRBC
  RDP
  SDP
  Cryoprecipitate
  FFP

- **PRISM SCORE:**

- **SOFA SCORE:**

- **Lab Investigations:**
  HEMOGRAM:

	DAY 1	DAY3	DAY 7	DAY OF DISCHARGE FROM PICU
Hb(hemoglobin)				
Platelet count				
MPV				
TLC				
Neutrophil				
Lymphocyte				
Monocyte				
Eosinophil				
RDW				
PLR(Platelet lymphocyte ratio)				

Signature of Candidate **Signature of Supervisor**

RFT • Urea • Creatinine • Sodium • Potassium • Chloride			
LFT • Total /Direct Bilirubin • SGOT/SGPT • ALP • Total Protein • Albumin			
ABG			

CRP			
PCT(Procalcitonin)			
BLOOD CULTURE			
URINE CULTURE			
ANY OTHER INVESTIGATIONS			

OUTCOME:

- **DISCHARGE**
- **DAMA**
- **DEATH**
- **Duration of hospital stay in PICU**
- **Duration of hospital stay in ward**

Signature of Candidate **Signature of Supervisor**

Variables	Infants[2]	children[3]	scores
Systolic Blood pressure (mmHg)	130-160	150-200	2
	55-65	65-75	2
	>160	>200	6
	40-54	50-64	6
	<40	<50	7
Diastolic Blood pressure (mmHg)	>110	>110	
Heart rate (beats/min)	>160	>150	4
	<90	<80	4
Respiratory rate (beats/ min)	61-90	51-70	1
	>90	>70	5
	Apnea	Apnea	5
Arterial Oxygen tension: Fraction of Inspired oxygen ratio[1]		200-300	2
		<200	3
Carbon dioxide Tension (KPa) [1]	6.8-8.66	6.8-8.66	1
	>8.66	>8.66	5
Glasgow Coma Scale (GCS) [1]	<8	<8	6
Pupillary reactions[1]	unequal and Dilated		4
	Fixed and Dilated		10
Prothrombin time/Partial thromboplastin time ratio[1]	>1.5*Control	>1.5*control	2
Total bilirubin (µmol/L) [1]	>60	>60	6
Potassium (mmol/L) [1]	3.0-3.5	3.0-3.5	1
	6.5-7.5	6.5-7.5	1
	<3.0	<3.0	5
	>7.5	>7.5	5
Calcium (mmol/L) [1]	1.75-2.00	1.75-2.00	2
	3.00-3.74	3.00-3.74	2
	<1.75	<1.75	6
	>3.74	>3.74	6
Glucose (mmol/L) [1]	2.2-3.3	2.2-3.3	4
	13.9-22.2	13.9-22.2	4
	<2.2	<2.2	8
	>22.2	>22.2	8
Bicarbonate (mmol/L) [1]	<16	<16	3
	>32	>32	3